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- 1963 Summer Sessions

- Academic Year 1963-64
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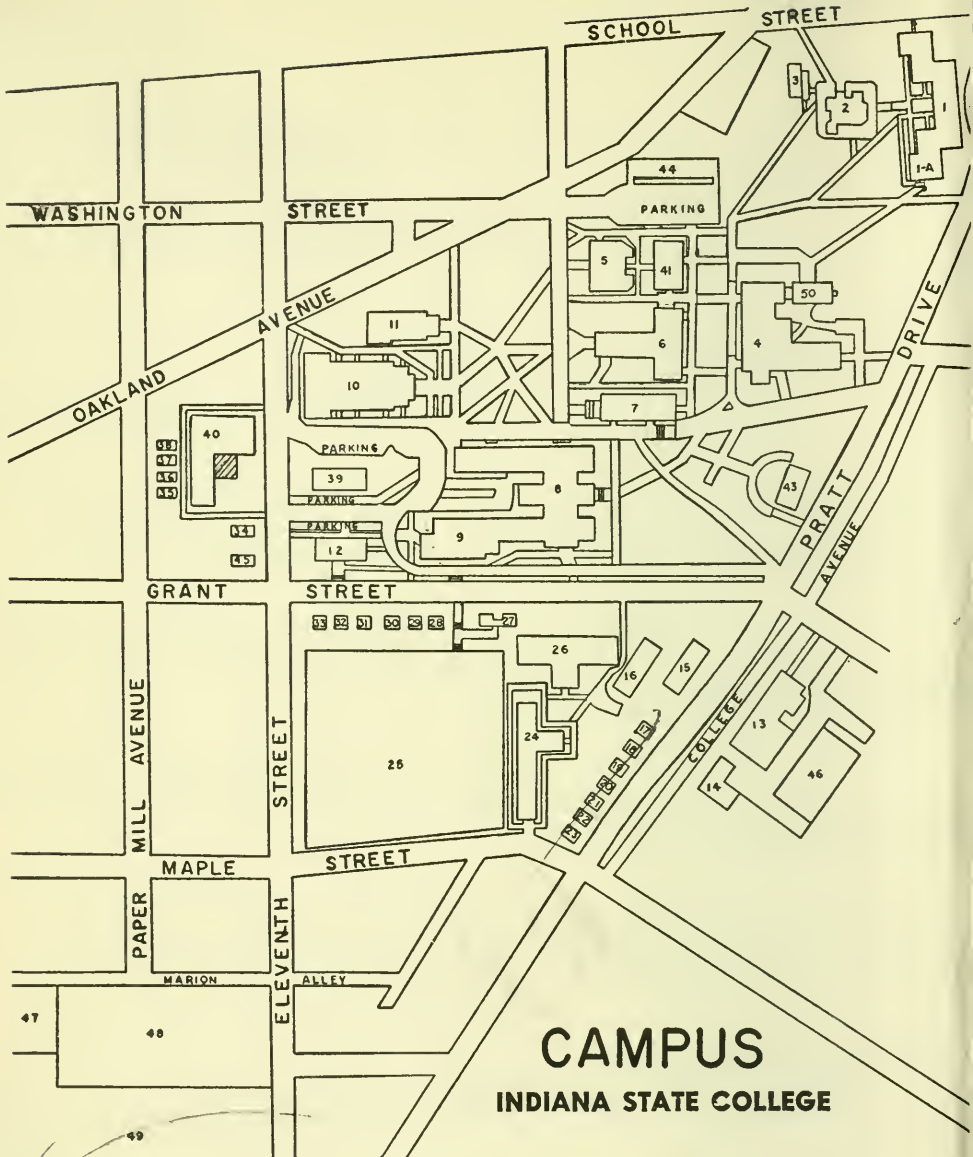
GRADUATE SCHOOL

ANNUAL BULLETIN

INDIANA
STATE COLLEGE

Indiana, Pennsylvania

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CAMPUS

INDIANA STATE COLLEGE

KEY TO BUILDINGS

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|--------------------------|-----------------------------|------------------------------|
| 1. Whitmyre Hall | 17. Cayuga House | 34. Shawanese House |
| 1A. Whitmyre Dining Hall | 18. Susquehanna House | 35. Louise Stanley House |
| 2. Elkin Hall | 19. Tuscarora House | 36. Ellen Richards House |
| 3. Elkin Annex | 20. Mohawk House | 37. College Infirmary |
| 4. Keith School | 21. Monegan House | 38. Lewis House |
| 5. Wilson Hall | 22. Seneca House | 39. Rhodes R. Stabley Librar |
| 6. Leonard Hall | 23. Catawba House | 40. Cogswell Hall |
| 7. McElhany Hall | 24. Langham Hall | 41. Walsh Hall |
| 8. John Sutton Hall | 25. New Dormitories (women) | 42. Sigma Tau Gamma House |
| 9. Thomas Sutton Hall | 26. Wahr Hall | 43. Flagstone Theater |
| 10. Fisher Auditorium | 27. Delaware House | 44. Faculty Parking |
| 11. Waller Gymnasium | 28. Lenape House | 45. Wyandot House |
| 12. Clark Hall | 29. Ottawa House | 46. Martin Rifle Range |
| 13. Power House | 30. Iroquois House | 47. Tennis Courts |
| 14. Shop Building | 31. Pawnee House | 48. Field House Site |
| 15. Greenhouse | 32. Cherokee House | 49. New Athletic Field |
| 16. Military Hall | 33. Sioux House | 50. Special Education Wing |

Six privately owned halls used as women's dormitories are located within one block of the main campus. These buildings are as follows: Conestoga Hall (835 Grant Street), Grant Hall (810 Grant Street), Lo House (760 Locust Street), Washington House (240 South Eleventh Street), Algonquin Hall (884 Wayne Avenue) and Wyoming Hall (1156 Oakland Avenue). New Student Union is located just northeast of No. 42.

Indiana Graduate School BULLETIN

VOLUME 69

DECEMBER, 1962

NUMBER 4

INDIANA STATE COLLEGE
INDIANA, PENNSYLVANIA

Graduate Catalog Number 1963-1964



THIS COLLEGE IS ACCREDITED BY THE NATIONAL COUNCIL FOR ACCREDITATION OF TEACHER EDUCATION FOR THE PREPARATION OF ELEMENTARY AND SECONDARY TEACHERS AND TEACHERS IN THE SPECIAL FIELDS OF ART, BUSINESS, HOME ECONOMICS, MUSIC, DRIVER AND SAFETY EDUCATION, DENTAL HYGIENISTS, AND PUBLIC SCHOOL NURSES WITH THE MASTER'S DEGREE AS THE HIGHEST DEGREE APPROVED. AND BY THE MIDDLE STATES ASSOCIATION OF COLLEGES AND SECONDARY SCHOOLS.

Issued Annually by the Trustees of the Indiana State College, Indiana, Pennsylvania. Entered as second-class matter, June 30, 1913, at the Post Office in Indiana, Pennsylvania, under Act of Congress, August 24, 1912.

ADMINISTRATION

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GRADUATE SCHOOL

I. Leonard Stright, Ph.D.	Dean of the Graduate School
Charles D. Leach, Ed.D.	Director of Research

GRADUATE COUNCIL

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CALENDAR

June 1, 1963—June 1, 1964

Pre-Session, 1963

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|------|--|
| May | 15—Tentative class schedule for pre-session must be submitted by this date. |
| June | 1—Students who plan to take graduate work during pre-session must have filed an application for graduate study on or before this date. |
| June | 1—Prospective August graduates must have filed an application for graduation on or before this date. |
| June | 8—Payment of fees for all graduate students in pre-session must be completed on or before this date. |
| June | 13—Pre-session classes begin. |
| June | 26—Pre-session classes terminate. |

Main Session, 1963

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|--------|--|
| June | 15—Students who plan to take graduate work during main session must have filed an application for graduate study on or before this date. |
| June | 15—Tentative class schedule for main session must be submitted by this date. |
| June | 27—Payment of fees for all graduate students in main session must be completed on or before this date. |
| July | 1—Final draft of research project or thesis due for August graduates. |
| July | 2—Main session classes begin. |
| August | 8—Main session classes terminate. |

Post-Session, 1963

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|--------|--|
| July | 20—Students who plan to take graduate work during post-session must have filed an application for graduate study on or before this date. |
| July | 20—Tentative class schedule for post-session must be submitted by this date. |
| August | 8—Payment of fees for all graduate students in post-session must be completed by this date. |
| August | 12—Post-session classes begin. |
| August | 23—Post-session classes terminate. |
| August | 25—Summer Commencement. |
| August | 30—End of post-session. |

Fall Semester, 1963

- August 15—Tentative class schedule for fall semester must be submitted by this date.
- August 31—Students who plan to take graduate work during the fall semester must have filed an application for graduate study on or before this date.
- September 5—Payment of fees for all graduate students in fall semester must be completed by this date.
- September 10—Fall semester evening classes begin.
- September 14—Fall semester Saturday classes begin.
- November 1—Prospective January graduates must have filed an application for graduation on or before this date.
- November 25—Thanksgiving vacation begins.
- November 30—Thanksgiving vacation ends.
- December 1—Final draft of research project or thesis due for January graduates.
- December 19—Christmas vacation begins.
- January 1—Christmas vacation ends.
- January 12—Winter Commencement.
- January 15—Semester ends.

Spring Semester, 1964

- January 1—Tentative class schedule for spring semester must be submitted by this date.
- January 16—Students who plan to take graduate work during the spring semester must have filed an application for graduate study on or before this date.
- January 24—Payment of fees for all graduate students in spring semester must be completed by this date.
- January 29—Spring semester evening classes begin.
- February 2—Spring semester Saturday classes begin.
- March 1—Prospective May graduates must have filed an application for graduation on or before this date.
- March 23—Easter vacation begins.
- March 31—Easter vacation ends.
- April 1—Final draft of research project or thesis due for May graduates.
- May 17—Classes terminate.
- May 24—Baccalaureate and Commencement Services.
- May 25—Semester ends.

GRADUATE PROGRAM — SPRING 1963

These courses will begin January 29, 1963.

(5:30-7:10 P. M.)		Tuesday Evenings		(7:30-9:10 P. M.)	
Bus	503	Financial Statement Analysis	Math	529	Differential Equations I
Ed	515	Elements of Research	Psy	540	Mental Hygiene
EngS	522	Chaucer	SS	562	Deviant Behavior
Geog	551	Professional Problems in Geographic Education			
Guid	536	Occupational & Educational Information			
Mus	505	Music Literature of the Early Romantic Era			
SS	582	Problems of Ethics			

(5:30-7:10 P. M.)		Wednesday Evenings		(7:30-9:10 P. M.)	
Ed	534	Diagnosis & Remediation in Reading	El	541	Special Problems in Elementary Social Studies
Guid	535	Study of the Individual	Guid	537	Techniques in Counseling
Psy	533	Psychology of Personality			

(5:30-7:10 P. M.)		Thursday Evenings		(7:30-9:10 P. M.)	
Bus	530	Money & Banking	Geog	552	Seminar in World Resources
Bus	570	Economic Backgrounds in Business (Non-Bus. Majors)	Guid	531	Philosophy & Principles of Guidance
Ed	513	Social Foundations of Education	Mus	514	Advanced Choral Arranging
Ed	516	Statistical Methods in Education I	Mus	521	Music Literature & Materials (Non-Mus. Majors)
EngS	524	Contemporary Poetry			
Sci	532	Interrelationships in Science	Biol	542	Comparative Anatomy II
			Chem	547	Biochemistry II

(9:10-10:40)		Saturday Mornings		(11:00-12:40)	
Bus	520	Retail Organization & Management	Bus	561	Improvement of Instruction in Basic Business Courses
Ed	512	Philosophical Foundations of Education	Ed	515	Elements of Research
Ed	531	Reading Problems of Jr.-Sr. High School Students	El	542	Arithmetic in the Elementary School
El	547	Resource Material in Children's Literature	EngS	527	Restoration and 18th Century Drama
EngS	510	Bibliographical Methods in English	Geog	556	Map and Photographic Interpretation
Geog	541	Agricultural Geography	Guid	532	Psychology of Growth & Development
Guid	534	Evaluative Methods in Guidance II	Guid	538	Organizing and Administering the Guidance Program
Guid	539	Group Guidance	Math	532	Advanced Calculus II
Math	562	Modern Algebra II	Mus	533	Comparative Choral Methods
Mus	502	Advanced Instrumental Conducting	Phys	571	Advanced Physics
Biol	564	Problems in Biology			Laboratory Practice
SS	543	Modern Asian-African Problems	SS	574	Political Science Seminar

Mus 540-591 will be offered as needed.

Geog 550 Geographic Reading in Geography may be scheduled on an individual basis through the chairman of the department.

GRADUATE SCHOOL — TENTATIVE SCHEDULE FOR SUMMER SESSIONS, 1963

Pre-Summer Session, 1963

Student may schedule one course only. The Student is expected to be on campus from 8:00 a.m. to 2:00 p.m. daily.

Bus 550	Principles and Problems of Business Education
Ed 512	Philosophical Foundations of Education
Ed 513	Social Foundations of Education
Ed 515	Elements of Research (Two Sections)
Ed 531	Reading Problems of Jr. Sr. High School Students
Ed 534	Diagnosis and Remediation in Reading
Ed 540	Supervision of Student Teaching
El 542	Arithmetic in the Elementary School
EngS 511	Seminar in the Teaching of English in the Secondary School
EngS 529	The Romantic Poets
EngS 544	Seminar in the Psychology of Language
Geog 534	Seminar in China, Korea, Japan
Geog 563	Field Course in Geography

MAIN SUMMER SESSION, 1963

During main session the student may schedule one, two, or three courses to total not more than six semester hours. Student is expected to be on campus from 8:00 A. M. until 2:00 P. M. daily.

First Period	Second Period	Third Period	Fourth Period
	Art 522 Art in America	Art 528 World Art Since 1875	Art 515 Research in Art Education
	Art 561 Graduate Studio in Drawing	Art 547, 548, 549 Graduate Studio in Jewelry and Metal Work I, II, III	Art 562, 563, 564 Graduate Studio in Oil Painting I, II, III
Bus 521 Principles of Marketing	Bus 502 Advanced Tax Accounting	Bus 532 Current Business Economic Problems	Bus 510 Business Communications and Report Writing
Bus 534 Consumer Economic Problems	Bus 512 Office Organization and Management	Bus 560 Improvement of Instruction in Secretarial Courses	Bus 552 Seminar in Business Education
Ed 513 Social Foundations of Education	Ed 512 Philosophical Foundations of Education	Bus 570 Economic Backgrounds of Business (Non-Bus Maj.)	
Ed 516 Statistical Methods in Education I	Ed 515 Elements of Research	Ed 511 Historical Foundations of Education	Ed 512 Philosophical Foundations of Education
Ed 517 Statistical Methods in Education II	Ed 516 Statistical Methods in Education I	Ed 513 Social Foundations of Education	
	Ed 518 Seminar in Sensory and Audio-Visual Materials	Ed 515 Elements of Research	
	Ed 522 Principles and Practices in Speech Improvement		
	Ed 535 Theory and Clinical Practice in Reading	Ed 535 Theory and Clinical Practice in Reading	
El 541 Special Problems in Elementary Social Studies	El 533 Reading Diabilities of Elementary School Children	El 544 Recent Trends in Elementary Language Arts	
El 543 Resource Materials in Elementary Science	El 547 Resource Materials in Children's Literature	El 546 Modern Procedures and Skills in Elementary Music	
El 545 Experimental Studies in Art Education	EngS 510 Bibliographical Methods in English		
EngS 512 American English Grammar	EngS 536 Studies in Middle English and Renaissance Literature	EngS 531F Major Writers: (Henry James)	EngS 521 Modern European Fiction

Post-Summer Session, 1963

Student may schedule one course only. The student is expected to be on campus from 8:00 a.m. to 2:00 p.m. each day.

Art 513 Evaluation of Growth in Art Education
Bus 562 Improvement of Instruction in Bookkeeping and Business Arithmetic
Ed 511 Historical Foundations of Education
Ed 512 Philosophical Foundations of Education
Ed 515 Elements of Research
Ed 518 Seminar in Sensory & Audio-Visual Materials
El 531 Curriculum Problems in Elementary Education
EngS 545 The Age of Pope

Guid 532 Psychology of Growth and Development	Guid 532 Psychology of Growth and Development	Guid 542 Industrial Geography	Fl 521 Language and Society	Geog 538 Seminar in Western United States
Guid 533 Evaluative Methods in Guidance I	Guid 533 Study of the Individual	Guid 534 Evaluative Methods in Guidance II	Geog 530 Geographic Readings in Geography	Guid 534 Evaluative Methods in Guidance II
Guid 535 Study of the Individual	Guid 536 Occupational and Educational Information	Guid 538 Organizing and Administering the Guidance Program	Guid 537 Techniques in Counseling	Guid 537 Techniques in Counseling
Guid 537 Evaluative Methods in Guidance I	Guid 539 Group Guidance	Guid 551 Individual Diagnosis in Guidance	Math 510 Seminar in Mathematics I	Guid 538 Organizing and Administering the Guidance Program
Guid 537 Techniques in Counseling	Guid 540 Clinical Techniques in Guidance	Math 560 Foundations of Algebra	Math 511 Seminar in Mathematics II	Math 521 Basic Concepts in Mathematics (Non-Math-Majors)
Math 552 Number Theory	Math 526 Fundamental Concepts of Analysis	Math 580 Logic	Math 531 Administrative Problems in Music Education	Mus 531 Administrative Problems in Music Education
Math 561 Modern Algebra I	Math 531 Advanced Calculus I	Mus 501 Advanced Choral Conducting	Psy 531 Psychology of the Exceptional Child	Psy 531 Psychology of the Exceptional Child
Mus 503 Music Literature of the Baroque Era	Math 543 Vector Analysis I	Mus 502 Advanced Instrumental Conducting	Psy 540 Mental Hygiene	Psy 540 Mental Hygiene
Mus 513 Advanced Band Scoring	Mus 532 Seminar in Music Education	Psy 565 Measurement of Interest and Personality	Psy 533 Psychology of Personality	Biol 555 Principles of Plant and Animal Distribution
Psy 531 Psychology of the Exceptional Child	Biol 551-552 Taxonomy of Plants I, II (4 s.h.)	Biol 543-544 Embryology I, II (4 s.h.)		
Biol 565 Field Natural History	Biol 543-544 Embryology I, II (4 s.h.)			
Sci 531 Atomic Structure	Chem 573-574 Advanced Organic Chemistry I, II (4 s.h.)			
SS 544 History Seminar	Sci 588 Field Biology in Elementary Science Education (4 s.h.)			SS 510 New Viewpoints in Social Science Instruction
SS 553 Contemporary Economic Issues	SS 572 Comparative Political Studies	SS 542 Contemporary Latin American Problems	SS 521 Contemporary American Issues	SS 583 American Philosophical Thought
				SS 593 The Science of Culture
				HPe 530 Workshop in Community-School Health Education

GRADUATE PROGRAM — FALL 1963

(5:30-7:10 P. M.)			Tuesday Evenings		(7:30-9:10 P. M.)	
Bus	500	Accounting Systems and Management	Art	512	Curriculum Development in Art Education	
EngS	525	Early English Drama	Ed	512	Philosophical Foundations of Education	
Geog	531	Seminar in Geography of Northwestern Europe	Math	530	Differential Equations II	
Guid	537	Techniques in Counseling	SS	573	Regional Political Studies	
Math	563	Linear Algebra I				
Mus	501	Advanced Choral Conducting				
SS	533	Social and Intellectual History of United States				
(5:30-7:10 P. M.)			Wednesday Evenings		(7:30-9:10 P. M.)	
Art	523	Aesthetics and Art Criticism	Art	544, 545, 546	Graduate Studio in Fabrics I, II, III	
El	533	Reading Disabilities of Elementary School Children	Ed	516	Statistical Methods in Education I	
EngS	531C	Major Writers: Hardy and Meredith	El	547	Resource Materials in Children's Literature	
Guid	531	Philosophy and Principles of Guidance	Guid	539	Group Guidance	
Guid	535	Study of the Individual	SS	592	Comparative Cultures	
(5:30-7:10 P. M.)			Thursday Evenings		(7:30-9:10 P. M.)	
Art	511	Art Supervision and Administration	Art	525	Architectural Influences in Contemporary Society	
Bus	531	Principles of Investments in Securities	Geog	532	Seminar in Geography of Mediterranean	
Ed	515	Elements of Research	Math	511	Seminar in Mathematics II	
Ed	513	Social Foundations of Education	Mus	511	Composition	
EngS	530	Tennyson and Browning	Psy	531	Psychology of the Exceptional Child	
Mus	506	Music Literature of the Late Romantic Period	Psy	532	Studies in Child Adjustment & Guidance	
Biol	553	Taxonomy of Animals	Biol	533	Biological Literature	
SS	551	International Economics	Phys	567	Analytical Mechanics I	
			Sci	586	Botany in Elementary Science Education I	

(9:00-10:40 A. M.)			Saturday Mornings	(11:00-12:40 P. M.)		
Art	513	Evaluation of Growth in Art Education		Art	565, 566, 567	Graduate Studio in Water Color Painting I, II, III
Art	521	Contemporary Movements in Art (Non-Art-Majors)		Bus	511	Advanced Shorthand for Teachers
Bus	551	Administration and Supervision of Business Education		EngS	510	Bibliographical Methods in English (Prerequisite: Elements of Research)
Ed	512	Philosophical Foundations of Education		FL	521	Language & Society
Ed	515	Elements of Research		Geog	525	Seminar in Geography of Africa; South of Sahara
EngS	531D	Major Writers: Whitman and Twain		Guid	536	Occupational & Education Information
Geog	527	Seminar in Mexico, Middle America and West Indian Islands		Guid	551	Individual Diagnosis in Guidance
Guid	533	Evaluative Methods in Guidance I		Math	521	Basic Concepts in Mathematics (Non-Math Majors)
Math	575	Projective Geometry I		Math	535	Functions of a Real Variable I
Mus	512	Advanced Orchestration		Mus	534	Comparative Instrumental Methods
Chem	548	Physical Chemistry I		Sci	573	Problem Solving in Physics and Chemistry I
SS	561	Social Policy Studies (Non-SS Majors)		SS	564	Sociology Seminar

Mus 540-591 will be offered as needed.

Geog 550 Geographic Reading in Geography may be scheduled on an individual basis through the chairman of the department.

GRADUATE PROGRAM — SPRING 1964

(5:30-7:10 P. M.)			Tuesday Evenings		(7:30-9:10 P. M.)	
Bus	501	Principles of Tax Accounting	Art	515	Research in Art Education	
Geog	522	Political Geography	Ed	513	Social Foundations of Education	
EngS	524	Contemporary Poetry	Math	541	Partial Differential Equations I	
Math	564	Linear Algebra II				
Mus	502	Advanced Instrumental Conducting				
Psy	540	Mental Hygiene				
SS	554	Economics Seminar				
(5:30-7:10 P. M.)			Wednesday Evenings		(7:30-9:10 P. M.)	
Art	512	Curriculum Development in Art Education	Art	550, 551, 552	Graduate Studio in Sculpture I, II, III	
Ed	515	Elements of Research	Ed	531	Reading Problems of Jr.-Sr. High School Students	
El	541	Special Problems in Elementary Social Studies	Guid	538	Organizing and Administering the Guidance Program	
EngS	531E	Major Writers: Poe and Melville	SS	591	Studies in Anthropology	
Guid	539	Group Guidance				
SS	541	Modern European Problems				
(5:30-7:10 P. M.)			Thursday Evenings		(7:30-9:10 P. M.)	
Art	527	Renaissance Art	Art	556	Graduate Studio in Theater Arts or Dramatic Arts	
Bus	521	Principles of Marketing	Geog	554	Physiography of U. S.	
Bus	570	Economic Backgrounds of Business (Non-Bus. Majors)	Guid	534	Evaluative Methods in Guidance II	
Ed	534	Diagnosis and Remediation in Reading	Guid	537	Techniques in Counseling	
EngS	526	Shakespeare and His Contemporaries	Math	510	Seminar in Math I	
Guid	536	Occupational & Educational Information	Mus	507	Music Literature Since 1900	
Mus	504	Music Literature of the 18th Century	Biol	566	Cellular Physiology	
Psy	533	Psychology of Personality	Phys	568	Analytical Mechanics II	
Biol	561	Plant Structure	Sci	587	Zoology in Elementary Science Education II	
SS	581	Problems in Logic	Mus	521	Music Literature & Materials (Non-Mus. Majors)	

(9:00-10:40 A. M.)			Saturday Mornings		(11:00-12:40 P. M.)	
Art	568, 569, 570	Graduate Studio in Print Making I, II, III	Bus	534	Consumer Economic Problems	
Bus	530	Money & Banking	Ed	512	Philosophical Foundations of Education	
Ed	515	Elements of Research	Ed	516	Statistical Methods in Education I	
El	544	Recent Trends in Elementary Language Arts	El	542	Arithmetic in the Elementary School	
EngS	510	Bibliographical Methods in English (Prerequisite: Elements of Research)	EngS	534	Types of Novel	
Geog	557	Geographic Research	Geog	540	Seminar in Geography of Pennsylvania	
Guid	531	Philosophy & Principles of Guidance	Guid	532	Psychology of Growth & Development	
Guid	535	Study of the Individual	Math	536	Functions of a Real Variable II	
Math	576	Projective Geometry II	Mus	533	Comparative Choral Methods	
Mus	515	Canon, Double Counterpoint & Fugue	Sci	574	Problem Solving in Physics & Chemistry II	
Chem	549	Physical Chemistry II	SS	571	Foreign Policy Studies	
SS	521	Contemporary Economic Issues (Non-SS Majors)				

Mus 540-591 will be offered as needed.

Geog 550 Geographic Reading in Geography may be scheduled on an individual basis through the chairman of the department.

GRADUATE STUDIES

at State College
Indiana, Pennsylvania

General Information

Location

Indiana State College is located in Indiana, Pennsylvania, a community with a population of approximately 20,000. Indiana is 30 miles north of Johnstown and 60 miles northeast of Pittsburgh. Situated in the foothills of the Allegheny Mountains, Indiana has a climate that is conducive to study the year round.

College Catalog

Detailed information about the College, its academic requirements, the names of the faculty, and the facilities are described in the general catalog. This publication may be obtained by writing to the Registrar.

Library

The College Library provides excellent facilities for graduate work with professional librarians readily available for assisting with specialized reference work.

The present book collection of over 80,000 volumes is supplemented by extensive holdings of periodicals, microfilms, microcards, curriculum materials, federal and state documents, association publication, and phonographic records.

The Rhodes R. Stabley Library was opened in 1961. It is designed to give efficient service through a uniform flow of library materials in an attractive, but functional setting. At least one professional librarian is always on duty to provide reference service.

All periodicals, reference volumes, microfilm and microcard materials are located on the main floor of the library. The book collection arrangement follows the Dewey Decimal Classification System. Books numbered 000 through 699 as well as the *reserve book collection* are located on the ground floor. Books numbered 700 through 999, fiction, the *curriculum materials collection*, the *children's literature collection*, *Pennsylvania collection*, and government documents are located on the top floor.

Graduate students are both encouraged and expected to spend time in the Library. Particular attention is given by librarians to graduate students in procurement of needed materials and the further development of proficiencies. The Library subscribes to the

spirit and the letter of the *General Interlibrary Loan Code* which regulates the procurement of interlibrary loans.

With the exception of those books which are reserved for special purposes, all books circulate for two weeks; unbound periodicals for one day. Bound periodicals do not circulate. Students should register for a Library Card, which will be needed to take out library materials.

Hours: 7:45-5:00-7:00-9:00—Monday and Friday
7:45-5:00-5:00-9:30—Tuesday, Wednesday and Thursday
7:45-5:00—Saturday
2:30-5:00—Sunday

Specific suggestions for the personal use of library materials may be found in the research manual which every graduate student is required to purchase.

Placement Service

Placement is a service offered by Indiana State College to its graduates without charge. The services of the Placement Bureau are available to students who received their Master's degree or who have been accepted as candidates for the degree in the Indiana Graduate School. Graduate students wishing to take advantage of placement service should complete the necessary forms with the Director of Placement.

Laboratory School

The Laboratory School with an enrollment of 350 students from kindergarten through tenth grade provides an opportunity for graduate students to observe and to participate in problems relating to teaching.

Audio-Visual Center

The Audio-Visual Center provides graduate students with an excellent collection of films, filmstrips, and other audio-visual equipment. Students may learn how to use audio-visual materials through courses offered in this area.

History of the Graduate School

Graduate work was inaugurated at Indiana State College in September, 1957.

The Graduate School at Indiana offers work leading to the degree, Master of Education. A student may now complete the requirements for this degree by following any one of the fourteen programs. These programs are Art, Business, Elementary Education, English, Geography, Guidance, Mathematics, Music, Biology, Chem-

istry, Elementary Science, Physical Science, Science, and Social Science. The curriculums for these programs are explained in the following pages under the respective captions.

Admissions Policy for Graduate Study

Admission to the Graduate School at Indiana is governed by the following policy which has been established by the Graduate Council:

1. The applicant must present a Bachelor's degree from a college or university that has been accredited by the Middle States Association of Colleges and Secondary Schools or the appropriate regional accrediting agency.
2. The applicant must present a transcript of his undergraduate work showing a 2.5 honor point value for all four years of his undergraduate work. The 2.5 assumes a grade of A to have 4 honor points per credit hour, a grade of B to have 3 honor points per credit hour, and a grade of C to have 2 honor points per credit hour. If the applicant's undergraduate record does not meet this 2.5 honor point value, or if he is a graduate of an unaccredited college, he may be admitted by making a satisfactory score on an entrance qualification examination.
3. The applicant must possess a Pennsylvania Teacher's Certificate or its equivalent. This implies that a student will have an undergraduate major in the field in which he wishes to work for the Master's Degree.
4. A satisfactory recommendation must be obtained from the applicant's undergraduate department or from qualified references.
5. Students applying for the degree in Music Education must present evidence of musical maturity in a formal audition before the Graduate Committee of the Music Education Department.

Admission to Graduate Study does not automatically mean that the student is a candidate for the Master's degree at Indiana. Admission to candidacy for the degree may be granted only after six or more hours of graduate work have been completed successfully at Indiana.

Steps Necessary for Admission to Graduate Study

1. The applicant will file an application for graduate work with the Dean of the Graduate School. Write to Dr. I. L. Stright, Dean of the Graduate School for application forms.

2. Each applicant will present a transcript of all undergraduate work taken for the Bachelor's degree. Transcripts of previous work taken at Indiana need not be submitted.
3. Each applicant may be required to have a personal interview with the Dean of the Graduate School or an assigned faculty member.

Admission to Candidacy for the Degree

The student should complete the following steps to qualify for admission to candidacy:

1. Submit an official application for admission to candidacy.
2. Submit a transcript of graduate work completed at other institutions.
3. Complete at least six semester hours of graduate work at Indiana.
4. Receive satisfactory course evaluations from the student's graduate instructors.
5. Submit a tentative program of study for the completion of the graduate program.

The application for admission to candidacy, the transcript of the graduate record, and the tentative program of study should be submitted by the student to the Dean of the Graduate School. Acceptance to candidacy requires the approval of the Dean of the Graduate School.

Semester Hours Required for the Degree

A minimum of thirty semester hours of approved graduate work beyond a Bachelor's degree is required. A well balanced, unified and complete program of study will be required regardless of the minimum credit requirement. Many students may find it necessary to earn more than the minimum number of credits before they will be regarded ready for the degree. Indiana State College is not committed to grant a degree upon the completion of thirty credits.

Full Time-Part Time Student

It is possible for a student to schedule a full time load in many of the approved programs. Ten to sixteen semester hours of work per semester is regarded a full time graduate schedule. Full time students should submit their proposed schedule for approval as early as possible. For part time students who are teaching, a maximum of four semester hours or two courses may be scheduled each semester. The number of semester hours of work obtained during summer sessions shall not exceed the number of weeks of attendance.

Time Limit

Thirty semester hours must be completed within the five-year period immediately preceding the date when all the requirements for the degree are completed. Any work accepted by transfer must also fall within this period. For justifiable reasons the Graduate Council may extend the period.

Residence

A minimum of ten semester hours will be required to be taken during summer sessions. The ten hours need not be taken in any one summer but may be extended over two or more different summers. During summer study, it is assumed that the student is not employed or engaged in any other work, and that his graduate study has top priority in his schedule. A minimum of twenty-four hours must be completed on the Indiana campus either in summer or in part time or full time study during the academic year.

Scholarship Requirement

A candidate must have maintained a grade point average of 3.0 (B), in all graduate work. Only grades of "A", "B", or "C" are acceptable toward a Master's degree. Marking system: grade of "A", 4 quality points; "B", 3 quality points; "C", 2 quality points. The work in any course must be completed by the final meeting of the particular class. An incomplete grade will be issued only when the work is interrupted due to a health condition. Under such a condition the "I" grade must be removed within sixty days following the end of the session.

Permanent Certification Requirements

By action of the State Council on Education, all college certificates issued after October 1, 1959 will require the completion of at least twelve hours of post-baccalaureate work for permanent certification. According to the projected schedule provisional certificates issued after October 1, 1963 will require twenty-four semester hours for permanent certification. Of the twenty-four hours at least twelve must be in the field of certification.

All teachers who are able to qualify for admission to a graduate program and who are able to profit by graduate work should be encouraged to do the work required for Permanent Certification in a Graduate Program in order that it may also be used toward a Master's degree.

When to Apply for Admission

Application forms for admission may be obtained from the Graduate Office. Applicants are urged to complete the necessary steps for admission as soon as possible. (Check calendar on pages 3 and 4 for deadline dates). Write to Dr. I. L. Stright, Dean of the Graduate School, State College, Indiana, Pennsylvania.

Scholarships

The Board of Trustees of the Indiana State College has authorized the college Loan and Scholarship Committee to divert some scholarship aid to meritorious graduate students. The following suggestions have been presented by the Loan and Scholarship Committee:

1. For the present that one \$50.00 scholarship be awarded each semester to that graduate student who best merits the award.
2. Three members of the Graduate Council serve as a committee to recommend the recipient to the Loan and Scholarship Committee.
3. Nominations for the award be made to the committee by the Dean of the Graduate School.
4. To be eligible for nomination the student must have completed twelve semester hours of graduate work at Indiana and be an approved candidate for the Master of Education degree at Indiana.

Kappa Delta Pi Graduate Scholarship

The Kappa Delta Pi Graduate Scholarship was established by Beta Gamma Chapter of this college to honor that member of the graduate group who is judged the ideal student. This award of twenty-five dollars is made each year by a committee of the local chapter and is awarded on the basis of scholarship and research competition.

Student Aid

Indiana is able to offer limited assistance in student aid through employment for those Graduate Students pursuing study on a full-time basis. For further information, contact the chairman of the department involved or the Dean of the Graduate School.

Undergraduate Summer Program

Indiana State College maintains a comprehensive program of undergraduate instruction throughout the summer. Detailed information on the undergraduate program may be obtained by writing to the Dean of Undergraduate Studies for the Summer School Bulletin.

Veterans

Indiana is approved to offer training under the Korean G.I. Bill (Public Law 550) and Public Law 894 (disabled Korean veterans). Students who are entitled to training under one of these bills should contact the Veterans' Counselor immediately after being accepted for admission to Indiana in order to secure additional instructions. This

procedure is necessary so veterans may be included on the monthly payrolls. The Office of the Veterans' Counselor is in Room 101, Whitmyre Hall.

Auditors

Students not eligible to enroll for credit may enroll as auditors. Course fees are the same as for those enrolled for credit. Anyone qualified for admission is expected to apply formally for admission before requesting permission to enroll in any graduate class.

Housing Facilities

Room reservations can be made by writing to the Dean of Women. An advance registration deposit will not be required to reserve a room for summer sessions.

Students are not expected to room alone. Therefore, prospective students are urged to apply in pairs. In this way each student is assured a congenial roommate. Single applications are handled to the best possible advantage, but the college prefers that students make their own choices whenever possible. Applications for rooms are filed in the order in which they are received. Students are requested to write to the Dean of Women if there is any preference in rooms, and to indicate whether a room with or without water is desired. The college will give preferences to those whose reservation deposit has been paid in advance.

Men in the Indiana Graduate School who desire housing facilities for the summer should write for information and reservations to the Dean of Men. All housing arrangements should be cared for as early as possible.

The housing fee, which includes room, board, and laundry, is \$16.00 per week.

Transfer of Credit

Resident (on main campus) graduate work of high quality done in a recognized graduate school elsewhere and coming within the five-year time limit may be accepted to the extent of 6 semester hours. Such credits will be transferred to the Graduate School at Indiana only after the student has applied for admission to candidacy for the degree, and then only if the chairman of the department concerned, after conference with the student, recommends to the Dean for his approval the transfer of such credits as coordinate with the student's program in his chosen field. Work already applied toward another degree cannot be accepted; nor extension work completed at another institution. The final six hours in any program must be completed at Indiana.

Fees

(Subject to change without notice.)

- Tuition Fee\$15.00 per semester hour
- Tuition Fee for Music Education Students will be \$20.00 per semester hour for all courses except private instruction which will be charged at the rate of \$24.00 per semester hour.
- Graduation Fee\$5.00
- Activity Fee (charged in summer session only). The activity fee for the regular summer session is \$7.00, and \$2.50 each for the pre- and post-session.
- Late Registration Fee.....\$1.00 per credit per day will be assessed a student who fails to complete registration, including payment of fees, on the dates and within the hours specified in the published procedure for registration for any particular semester or term.
- Master's Cap, Hood and Gown FeeCandidates who have been accepted by the Graduate School for the Master's degree are required to purchase or rent from the college bookstore a Master's cap, hood, and gown to be worn at the graduation exercises. The fee for these items is nominal.
- Thesis or Research Project Binding ExpenseThe binding of the required copies of the thesis or the research project is an expense which must be cared for by each graduate candidate. The current charge for binding a thesis is \$4.00 per copy and for binding a research project, \$1.00 per copy.

Transcripts of Graduate Work

Transcripts of one's graduate work may be obtained by contacting the registrar's office. The fee for this service is \$1 per transcript.

Refunds

There will be no tuition refunds except in cases of prolonged illness. A request for such a refund must be accompanied by a medical certificate indicating prolonged illness and inability to work or attend classes. Half of the tuition fee will be refunded if the request is made prior to the completion of one-third of the scheduled class periods. No refund will be made after one-third of the class meetings.

Withdrawals from Classes

If a student decides to withdraw from a course before the middle of any semester or session, he may do so by notifying the Graduate Office in writing of his intent to withdraw. In this case a grade of **W** may be entered on the permanent record. A student withdrawing

from a course after the middle of a semester or session will automatically receive an F. If withdrawal is caused by a health condition or for another approved reason, the grade may be indicated as incomplete and made up in accordance with an agreement between the instructor, student, and Dean of the Graduate School.

Programming and Registration

The responsibility for being properly programmed and registered rests with the student. For each session the student, following the curriculum in this publication under his particular major field, prepares a schedule of courses to fit his individual needs. Normally he schedules content courses in his major as rapidly as they are available. The schedule is submitted to the Dean of the Graduate School for his approval. The student is responsible for following the specified procedure.

Academic Load

Many graduate students depend upon part-time or full-time employment to meet their expenses. A student who is thus employed must recognize the time demands of his work schedule in planning his graduate program. The Graduate School assumes that its facilities should be made available only to students who can benefit from graduate study to a maximum extent.

Curriculum for Master of Education Degree

"The education of a teacher needs to be seen as a whole, for it is the final product which is important rather than the content of any one stage. The aim of the process is to produce men and women whose intellectual and cultural backgrounds are broad and deep, who know the material they are to teach and who can present it skillfully. The balance among the three factors in the objectives of a particular graduate student's program will vary with the candidate's previous background and to some extent in view of the age group and subjects he will teach, but none of the three may be neglected."¹

In each of the several programs leading to the master's degree at Indiana, the student takes work in several categories. The emphasis is placed upon excellence in scholarship and depth in a discipline. The standards set forth in the curriculums listed elsewhere in this bulletin provide facilities to meet the individual needs of the student.

Every student must complete the course entitled *Elements of Research*. Research plays an important part to the graduate student in any of the Indiana programs. This research feature should enable

¹Document 4.72, Middle States Association of Colleges and Secondary Schools, Commission on Institutions of Higher Education.

the student to acquire the techniques of research as well as to be able to interpret and comprehend current research as it is applied in the student's field.

Objectives and Philosophy of the Graduate School

The primary purposes of the graduate programs at Indiana are three: to encourage excellence in scholarship, to provide for depth in the student's special field, and to stimulate enthusiasm for continued cultural and professional growth.

Student Responsibility

The graduate student is expected to know the requirements for the degree he plans to earn. While the officers and teachers of the Graduate School will endeavor to aid in any way possible, the responsibility for any error in his own enrollment or in the interpretation of the requirements rests with the student.

Graduate Study in Reading

Elementary teachers interested in reading may apply six (6) semester hours of work in the area of professional studies in the Elementary Program. Junior and Senior High School teachers majoring in English may apply six (6) semester hours of work in the professional studies area in the English program. Reading will be written on the certificate valid for English when an applicant has completed a minimum of six (6) semester hours in developmental and remedial reading.

Normally a student will follow this sequence:

Elementary teachers will take El 533 as the initial course and then follow with Ed 534-535.

Secondary teachers will start with Ed 531 and follow with Ed 534-535.

CERTIFICATION OF GUIDANCE COUNSELORS

The following statement has been issued by the Department of Public Instruction, Bureau of Teacher Certification. These requirements became effective October 1, 1960. In Part C following each area the course or courses in the Indiana Graduate School are listed Provisional Certificate Qualifications:

- A. Must have at least a provisional certificate to teach; or a Master's degree from an approved school of social work plus an additional six semester hours of credit in the following areas:
 1. Principles of elementary or secondary education.
 2. Elementary or secondary school curriculum.

- B. Must have had two years of successful teaching, social work or professional counseling experience.
- C. Must have completed eighteen semester hours of graduate work distributed in the following areas:
 - 1. Philosophy and Principles of Guidance
Guid 531 Philosophy and Principles of Guidance
 - *2. Growth and Development of the Individual in Childhood and Adolescence
Guid 532 Psychology of Growth and Development
 - *3. The Study of the Individual
Guid 535 The Study of the Individual
Psy 532 Studies in Child Adjustment and Guidance
 - 4. Tests and Measurements
Guid 533—
534 Evaluative Methods in Guidance I, II
 - *5 Collecting, Evaluating and Using Occupational, Educational and Related Information
Guid 536 Occupational and Educational Information
 - 6. Administrative and Community Relationships
Guid 538 Organizing and Administering the Guidance Program
 - *7. Techniques Used in Counseling
Guid 537 Techniques in Counseling
 - 8. Group Guidance
Guid 539 Group Guidance
 - 9. Supervised Experience in Counseling
Guid 540 Clinical Techniques in Guidance
Guid 551 Individual Diagnosis in Guidance

Permanent Counselor Certificate Qualifications:

- A. Must have a provisional counselor's certificate.
- B. Must have had three years of successful counseling. This experience should consist of at least half-time each week spent in counseling duties in a public elementary or secondary school.
- C. Provisional Counselor College Certificates issued after October 1, 1959, shall require for validation for the permanent form of the certificate the completion of Master's degree or its equivalent** in the field of school counseling and guidance.

*Required Areas — At least one (1) course is required in each.

**Master's Degree in Social Work.

See the Indiana Curriculum in Guidance.

Scope of Certificate for a Guidance Counselor:

This Certificate permits the holder to serve as a guidance counselor in all the grades of the public schools.

Advanced Graduate Study Beyond Master's Degree

Students may find that more courses are offered that would be of benefit to them than they are able to include in their Master's degree program. These students are encouraged to continue their training after receiving their Master's degree and this additional training will be recognized by many school districts for salary purposes and by the Bureau of Teacher Certification for certification purposes. Students are advised, however, that most graduate schools have their own residence requirements and will probably not accept more than 30 credit hours (or Master's equivalent) of graduate credit earned at Indiana toward the Doctor's degree at their institution.

Appropriate certificates may be awarded to the student who completes an additional 15 or 30 credit hours beyond the Master's degree. For purposes of this certificate these credits must be apportioned in a manner approved by the Dean of the Graduate School.

Internship In Elementary Education

Indiana State College has established a fifth-year internship program leading to the Master of Education degree which is available for a limited number of Elementary graduates.

Under the Indiana fifth-year internship plan, the participant will have first completed his or her Bachelor of Science degree in elementary education and have received a provisional certificate from the state. The participant will then begin the fifth-year program taking a total of 8 hours graduate work the first summer following the completion of the Bachelor's degree. During the school year immediately following the summer session, the teacher, taking the fifth-year program, will teach one semester as a full-time professional teacher in a selected school system and for one semester will be a full-time graduate student taking from 12 to 16 hours of graduate work on the Indiana State College campus. During the summer sessions, which follow the intern teaching year, the student will then complete his or her Master's degree work on the Indiana State College campus, receiving the Master's degree at the August commencement in the first full year following the receipt of the Bachelor's degree.

While the teacher is employed as a full-time professional teacher in a selected school system, under the Indiana State College fifth-year internship program, he or she will have individual consultations on his professional work progress with a specialist from the college in which there will be intensive and constant review of the intern's work as a full-time professional teacher. The (intern) teacher will be paid by the school district for one-half year at the going rate for a professional teacher in that position.

The course work taken during the two summer sessions and the one full semester by the intern in the fifth-year program for the elementary teacher will be carefully selected to provide the maximum professional and personal benefit. This course work will meet the requirements for the Master of Education degree in elementary education and will fulfill permanent certification requirements concerning the graduate hours required.

Under internship conditions which entail close conferences and follow-up study by an elementary education specialist from Indiana State College, the teacher will, in effect, be earning a full half-year's salary as a professional teacher while completing work for his or her Master's degree.

For information regarding the fifth-year internship program for the Master's degree in elementary education, interested persons should write to Dr. P. D. Lott, Chairman of the Elementary Education Department, State College, Indiana, Pennsylvania.

CURRICULUMS FOR THE MASTER OF EDUCATION DEGREE

ART

Curriculum for Master of Education Degree

Students working for this degree with a major in Art will complete the thirty (30) semester hours of work using the following outline as a guide:

- I. General Studies — Select four to six (4-6) semester hours from at least 2 areas. Other choices may be made with the approval of the adviser.

Bus	570	Economic Backgrounds of Business	2 s.h.
EngS	521	Modern European Fiction	2 s.h.
EngS	540	Twentieth Century American Drama	2 s.h.
EngS	535	Criticism	2 s.h.
EngS	531A	or B Major Writers	2 s.h.
EngS	523	The Development of Modern English	2 s.h.
EngS	536	Studies in Middle English and Renaissance Literature	2 s.h.
EngS	537	Modern American Fiction	2 s.h.
FL	521	Language and Society	2 s.h.
Math	521	Basic Concepts in Mathematics	2 s.h.
Mus	521	Music Literature and Materials	2 s.h.
Sci	521	Recent Advances in Science	2 s.h.
SS	521	Contemporary American Issues	2 s.h.
SS	561	Social Policy Studies	2 s.h.

II. Subject Matter Concentration Area (14 to 22 s.h.)

A. Professional Studies (4 to 12 s.h.)

1. At least eight (8) semester hours in this section required for students seeking a Supervisor of Art certificate; otherwise, elect four (4) semester hours.

Art	510	Art and the Exceptional Child	2 s.h.
Art	511	Art Supervision and Administration	2 s.h.
Art	515	Research in Art Education (Prerequisite: Ed 515)	2 s.h.
Ed	550	Thesis	2-4 s.h.

2. Elective. Four (4) semester hours in this section are recommended for those students who plan to attain Supervisory certification.

Art	512	Curriculum Development in Art Education	2 s.h.
Art	513	Evaluation of Growth in Art Education	2 s.h.
Psy	531	Psychology of the Exceptional Child	2 s.h.

B. Fine and Applied Arts and Crafts (6 to 18 s.h.)

1. The Basis of Art in Culture (Elect 2 to 6 s.h.)

Art	522	Art in America	2 s.h.
Art	523	Aesthetics and Art Criticism	2 s.h.
Art	524	Art of the East	2 s.h.
Art	525	Architectural Influences in Contemporary Society	2 s.h.
Art	526	Exotic Art and Art of Latin America	2 s.h.
Art	527	Renaissance Art	2 s.h.
Art	528	World Art Since 1875	2 s.h.

2. Design (Elect 2 to 6 s.h.) Three clock hours are required to earn two semester hours. The student may elect three different courses or three courses in one field as indicated by Roman Numerals — for example, Graduate Studio in Ceramics I, II and III.

Art	540-541-542	Graduate Studio in Ceramics I, II, III	2-6 s.h.
Art	543	Exhibition Techniques	2 s.h.
Art	544-545-546	Graduate Studio in Fabrics I, II, III	2-6 s.h.

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|-----|-------------|--|----------|
| Art | 547-548-549 | Graduate Studio in Jewelry and Metal Work I, II, III | 2-6 s.h. |
| Art | 550-551-552 | Graduate Studio in Sculpture I, II, III | 2-6 s.h. |
| Art | 553-554-555 | Graduate Studio in Wood Work I, II, III | 2-6 s.h. |
| Art | 556 | Graduate Studio in Theater Arts or Dramatic Arts | 2 s.h. |
3. Graphic Design (Elect 2 to 6 s.h.) Three clock hours are required to earn two semester hours. The student may elect three different courses or three courses in one field as indicated by Roman Numerals.
- | | | | |
|-----|-------------|--|----------|
| Art | 561 | Graduate Studio in Drawing | 2 s.h. |
| Art | 562-563-564 | Graduate Studio in Oil Painting I, II, III | 2-6 s.h. |
| Art | 565-566-567 | Graduate Studio in Water Color Painting I, II, III | 2-6 s.h. |
| Art | 568-569-570 | Graduate Studio in Print Making I, II, III | 2-6 s.h. |
| Art | 571 | Graduate Studio in Mural Painting | 2 s.h. |
- III. Foundations of Education — select two (2) semester hours
- | | | | |
|----|-----|--|--------|
| Ed | 511 | Historical Foundations of Education | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed | 513 | Social Foundations of Education | 2 s.h. |
- IV. Research Techniques — two (2) semester hours are required. This course should be completed early in the student's program.
- | | | | |
|----|-----|----------------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
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BUSINESS

Curriculum for Master of Education Degree

- I. General Studies — four to six (4-6) semester hours of work to be selected from the following:
- | | | | |
|------|-----|---|--------|
| Art | 521 | Contemporary Movements in Art | 2 s.h. |
| EngS | 521 | Modern European Fiction | 2 s.h. |
| EngS | 523 | The Development of Modern English | 2 s.h. |
| Geog | 521 | Advanced Human Geography | 2 s.h. |
| Math | 521 | Basic Concepts in Mathematics | 2 s.h. |
| Sci | 521 | Recent Advances in Science | 2 s.h. |
| SS | 521 | Contemporary American Issues | 2 s.h. |
- II. Subject Matter Concentration Area — fourteen to sixteen (14-16) semester hours work in subject matter content to be selected from the following: A minimum of two areas are to be chosen.
- A. Accounting — Prerequisite of twelve hours in Accounting
- | | | | |
|-----|-----|---|--------|
| Bus | 500 | Accounting Systems and Management | 2 s.h. |
| Bus | 501 | Principles of Tax Accounting | 2 s.h. |
| Bus | 502 | Advanced Tax Accounting | 2 s.h. |
| Bus | 503 | Financial Statement Analysis | 2 s.h. |
- B. Secretarial — Prerequisite of nine hours in Shorthand
- | | | | |
|-----|-----|--|--------|
| Bus | 510 | Business Communications and Report Writing | 2 s.h. |
| Bus | 511 | Advanced Shorthand for Teachers | 2 s.h. |
| Bus | 512 | Office Organization and Management | 2 s.h. |
- C. Retailing — Prerequisite of six hours in Retailing
- | | | | |
|-----|-----|--|--------|
| Bus | 520 | Retail Organization and Management | 2 s.h. |
| Bus | 521 | Principles of Marketing | 2 s.h. |
- D. Basic Business
- | | | | |
|-----|-----|--|--------|
| Bus | 530 | Money and Banking | 2 s.h. |
| Bus | 531 | Principles of Investment in Securities | 2 s.h. |
| Bus | 532 | Current Business Economic Problems | 2 s.h. |
| Bus | 533 | Case Problems in Business Law | 2 s.h. |
| Bus | 534 | Consumer Economic Problems | 2 s.h. |
| Bus | 540 | Office or Retail Work Experience | 4 s.h. |

III. Professional Studies — six to ten (6-10) semester hours including a research project.

A. General Area

Bus	550	Principles and Problems of Business Education	2 s.h.
Bus	551	Administration and Supervision of Business Education	2 s.h.
Bus	552	Seminar in Business Education	2 s.h.
Ed	516	Statistical Methods in Education I	2 s.h.
Ed	550	Thesis	2 to 4 s.h.

B. Instructional Area — a minimum of two semester hours

Bus	560	Improvement of Instruction in Secretarial Courses ...	2 s.h.
Bus	561	Improvement of Instruction in Basic Business Courses	2 s.h.
Bus	562	Improvement of Instruction in Bookkeeping and Business Arithmetic	2 s.h.

IV. Foundations of Education — two (2) semester hours of work selected from:

Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

V. Research Techniques — the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2 s.h.
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ELEMENTARY EDUCATION

Curriculum for Master of Education Degree

Students working for this degree in Elementary Education will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. General Studies — fourteen to eighteen (14-18) semester hours of work in General Studies to be selected from the following courses:

Art	521	Contemporary Movements in Art	2 s.h.
Bus	570	Economic Backgrounds of Business	2 s.h.
Ed	522	Principles and Practices in Speech Improvement	2 s.h.
EngS	521	Modern European Fiction	2 s.h.
EngS	523	The Development of Modern English	2 s.h.
EngS	524	Contemporary Poetry	2 s.h.
EngS	525	The Early English Drama	2 s.h.
FL	521	Language and Society	2 s.h.
FL	522	Applied Linguistics	2 s.h.
Geog	521	Advanced Human Geography	2 s.h.
HE	521	Problems in Family Living	2 s.h.
HPe	521	Advanced Seminar in Health and Safety	2 s.h.
Math	521	Basic Concepts in Mathematics	2 s.h.
Mus	521	Music Literature and Materials	2 s.h.
Sci	521	Recent Advances in Science	2 s.h.
SS	521	Contemporary American Issues	2 s.h.
SS	561	Social Policy Studies	2 s.h.

II. Professional Studies — eight to ten (8-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

Ed	516	Statistical Methods in Education I	2 s.h.
Ed	518	Seminar in Sensory and Audio-Visual Materials	2 s.h.
Ed	534—		
	535	Diagnosis and Remediation in Reading-Theory and Clinical Practice	each 2 s.h.
Ed	550	Thesis	2 to 4 s.h.
El	531	Curriculum Problems in Elementary Education	2 s.h.

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|-----|-----|--|--------|
| El | 533 | Reading Disabilities of Elementary School Children | 2 s.h. |
| El | 541 | Special Problems in Elementary Social Studies | 2 s.h. |
| El | 542 | Arithmetic in the Elementary School | 2 s.h. |
| El | 543 | Resource Materials in Elementary Science | 2 s.h. |
| El | 544 | Recent Trends in Elementary Language Arts | 2 s.h. |
| El | 545 | Experimental Studies in Art Education | 2 s.h. |
| El | 546 | Modern Procedures and Skills in Elementary Music | 2 s.h. |
| El | 547 | Resource Materials in Children's Literature | 2 s.h. |
| Psy | 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy | 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Psy | 540 | Mental Hygiene | 2 s.h. |
- III. Foundations of Education — two (2) semester hours of work to be selected from the following courses:
- | | | | |
|----|-----|--|--------|
| Ed | 511 | Historical Foundations of Education | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed | 513 | Social Foundations of Education | 2 s.h. |
- IV. Research Techniques — the following course is required. It should be scheduled early in the student's program:
- | | | | |
|----|-----|----------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
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ENGLISH

Curriculum for Master of Education Degree

Students working for this degree with a major in English will complete the thirty (30) semester hours of work in accordance with the following division:

- I. Subject Matter Concentration Area — sixteen to twenty-four (16-24) semester hours of work in subject matter content are to be selected from the following courses:
- | | | | |
|---|------|--|--------|
| EngS | 510 | Bibliographical Methods in English | 2 s.h. |
| (Required of all English majors after completing Ed 515, Elements of Research.) | | | |
| EngS | 512 | American English Grammar | 2 s.h. |
| EngS | 521 | Modern European Fiction | 2 s.h. |
| EngS | 522 | Chaucer | 2 s.h. |
| EngS | 523 | The Development of Modern English | 2 s.h. |
| EngS | 524 | Contemporary Poetry | 2 s.h. |
| EngS | 525 | The Early English Drama | 2 s.h. |
| EngS | 526 | Shakespeare and His Contemporaries | 2 s.h. |
| EngS | 527 | Restoration and Eighteenth Century Drama | 2 s.h. |
| EngS | 528 | Milton | 2 s.h. |
| EngS | 529 | The Romantic Poets | 2 s.h. |
| EngS | 530 | Tennyson and Browning | 2 s.h. |
| EngS | 531A | Major Writers: (Emerson, Thoreau, and Hawthorne) | 2 s.h. |
| EngS | 531B | Major Writers: (Faulkner and Hemingway) | 2 s.h. |
| EngS | 531C | Major Writers: (Hardy and Meredith) | 2 s.h. |
| EngS | 531D | Major Writers: (Whitman and Twain) | 2 s.h. |
| EngS | 531E | Major Writers: (Poe and Melville) | 2 s.h. |
| EngS | 531F | Major Writers: (Henry James) | 2 s.h. |
| EngS | 533 | British Drama since 1880 | 2 s.h. |
| EngS | 534 | Types of the Novel | 2 s.h. |
| EngS | 535 | Criticism | 2 s.h. |
| EngS | 536 | Studies in Middle English and Renaissance Literature | 2 s.h. |
| EngS | 537 | Modern American Fiction | 2 s.h. |
| EngS | 538 | Victorian Prose | 2 s.h. |
| EngS | 539 | The Metaphysical Poets | 2 s.h. |
| EngS | 540 | Twentieth Century American Drama | 2 s.h. |
| EngS | 541 | The Rise of American Regionalism | 2 s.h. |
| EngS | 542 | Contemporary British Novelists | 2 s.h. |
| EngS | 543 | The Forms of Drama | 2 s.h. |

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|----------|---|--------|
| EngS 544 | Seminar in the Psychology of Language | 2 s.h. |
| EngS 545 | The Age of Pope | 2 s.h. |
| FL 521 | Language and Society | 2 s.h. |
- II. Professional Studies — two to eight (2-8) semester hours of work, including Research Project or the Thesis, to be selected from the following:
- | | | |
|----------|--|--------|
| EngS 511 | Seminar in the Teaching of English in the
Secondary School | 2 s.h. |
| EngS 550 | Workshop in Play Production | 6 s.h. |
| Ed 516 | Statistical Methods in Education I | 2 s.h. |
| Ed 518 | Seminar in Sensory and Audio-Visual Materials | 2 s.h. |
| Ed 531 | Reading Problems of Junior and Senior
High School Students | 2 s.h. |
| Ed 534— | | |
| 535 | Diagnosis and Remediation in Reading-Theory
and Clinical Practice | 2 s.h. |
| Ed 550 | Thesis | 2 s.h. |
| Psy 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
- III. Foundations of Education — two (2) semester hours of work to be selected from the following courses:
- | | | |
|--------|--|--------|
| Ed 511 | Historical Foundations of Education | 2 s.h. |
| Ed 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed 513 | Social Foundations of Education | 2 s.h. |
- IV. Research Techniques — the following course is required. It should be scheduled early in the student's program:
- | | | |
|--------|----------------------------|--------|
| Ed 515 | Elements of Research | 2 s.h. |
|--------|----------------------------|--------|

GEOGRAPHY

Curriculum for Master of Education Degree

Students working for this degree with a major in Geography will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area — fourteen to twenty-two (14-22) semester hours of work in subject matter content are to be selected from the following courses: 14 semester hours in Geography (minimum). 8 additional hours in Geography and/or related or applied courses to be approved by department.

Geography courses to be offered:

Geog 521	Advanced Human Geography	2 s.h.
Geog 522	Political Geography	2 s.h.
Geog 523	Urban Geography	2 s.h.
Geog 525—		
540	Seminars in Regional Geography (See Course Descriptions)	each 2 s.h.
Geog 541	Agricultural Geography	2 s.h.
Geog 542	Industrial Geography	2 s.h.
Geog 550A—		
550B	Geographic Readings	2 or 4 s.h.
Geog 552	Seminar in World Resources	2 s.h.
Geog 554	Physiography of the United States	2 s.h.
Geog 555	Advanced Cartography	2 s.h.
Geog 556	Map and Photographic Interpretation	2 s.h.
Geog 557	Geographic Research	2 s.h.
Geog 563	Field Course in Geography	2 s.h.

Courses above 545 are not recommended for other than geography, social science or science majors.

- II. Professional Studies — four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:
- | | | | |
|------|-----|---|-------------|
| Ed | 516 | Statistical Methods in Education I | 2 s.h. |
| Ed | 518 | Seminar in Sensory and Audio-Visual Materials | 2 s.h. |
| Ed | 550 | Thesis | 2 to 4 s.h. |
| Psy | 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy | 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Geog | 551 | Professional Problems in Geographic Education | 2 s.h. |
- III. Foundations of Education — two (2) semester hours of work to be selected from the following courses:
- | | | | |
|----|-----|--|--------|
| Ed | 511 | Historical Foundations of Education | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed | 513 | Social Foundations of Education | 2 s.h. |
- IV. Research Techniques — the following course is required. It should be scheduled early in the student's program:
- | | | | |
|----|-----|----------------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
|----|-----|----------------------------|--------|

GUIDANCE

Curriculum for Master of Education Degree

Students working for this degree with a major in Guidance will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area — fourteen to twenty-two (14-22) semester hours of work in subject matter content are to be selected from the following courses:
- | | | | |
|------|------|---|--------|
| Guid | 531 | Philosophy and Principles of Guidance | 2 s.h. |
| Guid | 532 | Psychology of Growth and Development | 2 s.h. |
| Guid | 533— | | |
| | 534 | Evaluative Methods in Guidance I, II | 4 s.h. |
| Guid | 535 | The Study of the Individual | 2 s.h. |
| Guid | 536 | Occupational and Educational Information | 2 s.h. |
| Guid | 537 | Techniques in Counseling | 2 s.h. |
| Guid | 538 | Organizing and Administering the Guidance Program | 2 s.h. |
| Guid | 539 | Group Guidance | 2 s.h. |
| Guid | 540 | Clinical Techniques in Guidance | 2 s.h. |
| Guid | 551 | Individual Diagnosis in Guidance | 2 s.h. |
- II. Professional Studies — four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:
- | | | | |
|-------|-----|---|-------------|
| *Ed | 516 | Statistical Methods in Education I | 2 s.h. |
| Ed | 517 | Statistical Methods in Education II | 2 s.h. |
| Ed | 518 | Seminar in Sensory and Audio-Visual Materials | 2 s.h. |
| Ed | 550 | Thesis | 2 to 4 s.h. |
| **Psy | 531 | Psychology of the Exceptional Child | 2 s.h. |
| **Psy | 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Psy | 533 | The Psychology of Personality | 2 s.h. |

*Ed 516 is required of all Guidance majors, and is a prerequisite for Evaluative Methods in Guidance.

**Psy 531 and Psy 532 might be used in lieu of some of the above where they have already been taken at the undergraduate level, and where all requirements of the Professional Area have been completed. They could not, however, be used to satisfy requirements in both areas where the credits overlap.

Note: The student should refer to the Course Description in the following section for prerequisites to the various courses in the Guidance Program.

- | | | |
|---------|--|-------------|
| Psy 540 | Mental Hygiene | 2 s.h. |
| Psy 541 | Individual Psychometric Techniques:
The Binet Scales (by special arrangement) .. | 2 s.h. |
| Psy 542 | Individual Psychometric Techniques:
The Wechsler Scales (by special arrangement) .. | 2 s.h. |
| Psy 561 | Advanced Psychological Practicum | 1 to 4 s.h. |
| Psy 565 | Measurement of Interest and Personality | 2 s.h. |
- III. Foundations of Education — two (2) semester hours of work to be selected from the following courses:
- | | | |
|--------|--|--------|
| Ed 511 | Historical Foundations of Education | 2 s.h. |
| Ed 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed 513 | Social Foundations of Education | 2 s.h. |
- IV. Research Techniques — the following course is required. It should be scheduled early in the student's program.
- | | | |
|--------|----------------------------|--------|
| Ed 515 | Elements of Research | 2 s.h. |
|--------|----------------------------|--------|

MATHEMATICS

Curriculum for Master of Education Degree

Students working for this degree with a major in Mathematics will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area — fourteen to twenty-two (14-22) semester hours of work in subject matter content are to be selected from the following courses:

ANALYSIS

Math 526	Fundamental Concepts of Analysis	2 s.h.
Math 529	Differential Equations I	2 s.h.
Math 530	Differential Equations II	2 s.h.
Math 531	Advanced Calculus I	2 s.h.
Math 532	Advanced Calculus II	2 s.h.
Math 533	Functions of a Complex Variable I	2 s.h.
Math 534	Functions of a Complex Variable II	2 s.h.
Math 535	Functions of a Real Variable I	2 s.h.
Math 536	Functions of a Real Variable II	2 s.h.
Math 539	Infinite Series I	2 s.h.
Math 540	Infinite Series II	2 s.h.
Math 541	Partial Differential Equations I	2 s.h.
Math 542	Partial Differential Equations II	2 s.h.
Math 543	Vector Analysis I	2 s.h.
Math 544	Vector Analysis II	2 s.h.

ALGEBRA

Math 552	Number Theory	2 s.h.
Math 560	Foundations of Algebra	2 s.h.
Math 561	Modern Algebra I	2 s.h.
Math 562	Modern Algebra II	2 s.h.
Math 563	Linear Algebra I	2 s.h.
Math 564	Linear Algebra II	2 s.h.

GEOMETRY

Math 570	Point Set Theory	2 s.h.
Math 571	Modern Geometry I	2 s.h.
Math 572	Modern Geometry II	2 s.h.
Math 573	Topology	2 s.h.
Math 575	Projective Geometry I	2 s.h.
Math 576	Projective Geometry II	2 s.h.

ADDITIONAL COURSES

- | | | |
|----------|-----------------------------|--------|
| Math 580 | Logic | 2 s.h. |
| Math 581 | Advanced Statistics | 2 s.h. |
| Math 582 | Theory of Probability | 2 s.h. |
| Math 583 | Linear Programming | 2 s.h. |
- II. Professional Studies — four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:
- | | | |
|----------|---|-------------|
| Ed 518 | Seminar in Sensory and Audio-Visual Materials | 2 s.h. |
| Ed 550 | Thesis | 2 to 4 s.h. |
| Psy 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Math 510 | Seminar in Mathematics I
(Arith, Alg, and Inf. Geom) | 2 s.h. |
| Math 511 | Seminar in Mathematics II (Sr. H. S. Mathematics) | 2 s.h. |
- III. Foundations of Education — two (2) semester hours of work to be selected from the following courses:
- | | | |
|--------|--|--------|
| Ed 511 | Historical Foundations of Education | 2 s.h. |
| Ed 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed 513 | Social Foundations of Education | 2 s.h. |
- IV. Research Techniques — the following course is required. It should be scheduled early in the student's program:
- | | | |
|--------|----------------------------|--------|
| Ed 515 | Elements of Research | 2 s.h. |
|--------|----------------------------|--------|

MUSIC

Curriculum for Master of Education Degree

Students working for this degree with a major in Music Education will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. General Studies — four to six (4-6) semester hours of work to be selected from the following courses:
- | | | |
|-----------|--|--------|
| Art 521 | Contemporary Movements in Art | 2 s.h. |
| EngS 521 | Modern European Fiction | 2 s.h. |
| EngS 531A | Major Writers (Emerson, Thoreau and Hawthorne) | 2 s.h. |
| EngS 531B | Major Writers (Faulkner and Hemingway) | 2 s.h. |
| SS 521 | Contemporary American Issues | 2 s.h. |
| SS 561 | Social Policy Studies | 2 s.h. |
- II. Subject Matter Concentration Area — ten to twelve (10-12) semester hours of work in subject matter content are to be selected from the following courses:
- | | | | |
|---|------------|--|--------|
| | { Mus 501 | Advanced Choral Conducting | 2 s.h. |
| * | { Mus 502 | Advanced Instrumental Conducting | 2 s.h. |
| | { Mus 503 | Music Literature of the Baroque Era | 2 s.h. |
| | { Mus 504 | Music Literature of the 18th Century | 2 s.h. |
| * | { Mus 505 | Music Literature of the Early Romantic Era | 2 s.h. |
| | { Mus 506 | Music Literature of the Late Romantic Era | 2 s.h. |
| | { Mus 507 | Music Literature Since 1900 | 2 s.h. |
| | { Mus 511 | Composition | 2 s.h. |
| | { Mus 512 | Advanced Orchestration | 2 s.h. |
| * | { Mus 513 | Advanced Band Scoring | 2 s.h. |
| | { Mus 514 | Advanced Choral Arranging | 2 s.h. |
| | { Mus 515 | Canon, Double Counterpoint and Fugue | 2 s.h. |
| | { Mus 516 | Form and Analysis | 2 s.h. |
| | { Mus 530 | Music Criticism | 2 s.h. |
| * | { Mus 540— | | |
| | 591 | Applied Music | 4 s.h. |

*These courses are required. Where bracketed, one course in that area is required.

III. Professional Studies — ten to twelve (10-12) semester hours of work, including the Thesis or Recital, to be selected from the following:

Ed	516	Statistical Methods in Education I	2 s.h.
*Ed	550	Thesis or Recital	2 to 4 s.h.
Psy	531	Psychology of the Exceptional Child	2 s.h.
Psy	532	Studies in Child Adjustment and Guidance	2 s.h.
*Mus	531	Administrative Problems in Music Education	2 s.h.
*Mus	532	Seminar in Music Education	2 s.h.
{Mus	533	Comparative Choral Methods	2 s.h.
*{Mus	534	Comparative Instrumental Methods	2 s.h.
Mus	535	Psychology of Music Education	2 s.h.
Mus	536	Church Music	2 s.h.

IV. Foundations of Education — two (2) semester hours of work to be selected from the following courses:

Ed	511	Historical Foundations of Education	2 s.h.
Ed	512	Philosophical Foundations of Education	2 s.h.
Ed	513	Social Foundations of Education	2 s.h.

V. Research Techniques — the following course is required. It should be scheduled early in the student's program:

Ed	515	Elements of Research	2 s.h.
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BIOLOGY

Curriculum for Master of Education Degree

Students working for this degree with a major in Biology will complete the thirty (30) semester hours of work in accordance with the following divisions:

I. Subject Matter Concentration Area — fourteen to twenty-two (14-22) semester hours of work in subject matter content are to be selected from the following courses:

Sci	531	Atomic Structure	2 s.h.
Sci	532	Interrelationships in Science	2 s.h.
Sci	534	The Solar Family	2 s.h.
Sci	535	Geomorphology	2 s.h.
Biol	533	Biological Literature	2 s.h.
Biol	541—		
	542	Comparative Anatomy I, II	4 s.h.
Biol	543—		
	544	Embryology I, II	4 s.h.
Biol	545	Microtechnique	2 s.h.
Biol	551—		
	552	Taxonomy of Plants I, II	4 s.h.
Biol	553	Taxonomy of Animals	2 s.h.
Biol	555	Principles of Plant and Animal Distribution	2 s.h.
Biol	561	Plant Structure	2 s.h.
Biol	562	Animal Physiology	2 s.h.
Biol	563	Physiology of Plants	2 s.h.
Biol	564	Problems in Biology	2 s.h.
Biol	565	Field Natural History	2 s.h.
Biol	566—		
	567	Cellular Physiology I, II	4 s.h.
Biol	568	Demonstrations in Biology	2 s.h.

*These courses are required. Where bracketed, one course in that area is required.

- II. Professional Studies — four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:
- | | | | |
|-----|-----|---|-------------|
| Ed | 516 | Statistical Methods in Education I | 2 s.h. |
| Ed | 518 | Seminar in Sensory and Audio-Visual Materials | 2 s.h. |
| Ed | 550 | Thesis | 2 to 4 s.h. |
| Psy | 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy | 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Sci | 510 | Problems in Science Education | 2 s.h. |
- III. Foundations of Education — two (2) semester hours of work to be selected from the following courses:
- | | | | |
|----|-----|--|--------|
| Ed | 511 | Historical Foundations of Education | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed | 513 | Social Foundations of Education | 2 s.h. |
- IV. Research Techniques — the following course is required. It should be scheduled early in the student's program:
- | | | | |
|----|-----|----------------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
|----|-----|----------------------------|--------|

CHEMISTRY

Curriculum for Master of Education Degree

Students working for this degree with a major in Chemistry will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area — sixteen to twenty-two (16-22) semester hours of work in subject matter content as follows:
- A. Required Courses:
- | | | | |
|------|---------|--|--------|
| Chem | 546-547 | Biochemistry I, II | 4 s.h. |
| Chem | 548-549 | Physical Chemistry I, II | 4 s.h. |
| Chem | 565-566 | Advanced Inorganic Chemistry I, II | 4 s.h. |
| Chem | 573-574 | Advanced Organic Chemistry I, II | 4 s.h. |
- B. Elective Courses — six (6) semester hours of work may be selected from the following courses:
- | | | | |
|------|------|--|--------|
| Sci | 531 | Atomic Structure | 2 s.h. |
| Sci | 572 | Demonstrations in Chemistry and Physics | 2 s.h. |
| Sci | 573— | | |
| | 574 | Problem Solving in Physics and Chemistry I, II | 4 s.h. |
| Phys | 569— | | |
| | 570 | Electricity and Magnetism I, II | 4 s.h. |
| Math | 526 | Fundamental Concepts of Analysis | 2 s.h. |
| Math | 530 | Differential Equations | 2 s.h. |
- II. Professional Studies — four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:
- | | | | |
|-----|-----|---|-------------|
| Ed | 516 | Statistical Methods in Education I | 2 s.h. |
| Ed | 518 | Seminar in Sensory and Audio-Visual Materials | 2 s.h. |
| Ed | 550 | Thesis | 2 to 4 s.h. |
| Psy | 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy | 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Sci | 510 | Problems in Science Education | 2 s.h. |
- III. Foundations of Education — two (2) semester hours of work to be selected from the following courses:
- | | | | |
|----|-----|--|--------|
| Ed | 511 | Historical Foundations of Education | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed | 513 | Social Foundations of Education | 2 s.h. |
- IV. Research Techniques — the following course is required. It should be scheduled early in the student's program:
- | | | | |
|----|-----|----------------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
|----|-----|----------------------------|--------|

PHYSICAL SCIENCE**Curriculum for Master of Education Degree**

Students working for this degree with a major in Physical Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area — fourteen to twenty-two (14-22) semester hours of work in subject matter content are to be selected from the following courses:

Sci 531	Atomic Structure	2 s.h.
Sci 532	Interrelationships in Science	2 s.h.
Sci 534	The Solar Family	2 s.h.
Sci 535	Geomorphology	2 s.h.
Chem 546—		
547	Biochemistry I, II	4 s.h.
Chem 548—		
549	Physical Chemistry I, II	4 s.h.
Chem 565—		
566	Advanced Inorganic Chemistry I, II	4 s.h.
Phys 567—		
568	Analytical Mechanics I, II	4 s.h.
Phys 569—		
570	Electricity and Magnetism I, II	4 s.h.
Phys 571	Advanced Physics Laboratory Practice	2 s.h.
Sci 572	Demonstrations in Chemistry and Physics	2 s.h.
Sci 573—		
574	Problem Solving in Physics and Chemistry I, II	4 s.h.
- II. Professional Studies — four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

Ed 516	Statistical Methods in Education I	2 s.h.
Ed 518	Seminar in Sensory and Audio-Visual Materials	2 s.h.
Ed 550	Thesis	2 to 4 s.h.
Psy 531	Psychology of the Exceptional Child	2 s.h.
Psy 532	Studies in Child Adjustment and Guidance	2 s.h.
Sci 510	Problems in Science Education	2 s.h.
- III. Foundations of Education — two (2) semester hours of work to be selected from the following courses:

Ed 511	Historical Foundations of Education	2 s.h.
Ed 512	Philosophical Foundations of Education	2 s.h.
Ed 513	Social Foundations of Education	2 s.h.
- IV. Research Techniques — the following course is required. It should be scheduled early in the student's program:

Ed 515	Elements of Research	2 s.h.
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SCIENCE**Curriculum for Master of Education Degree**

Students working for this degree with a major in Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area — fourteen to twenty-two (14-22) semester hours of work in subject matter content are to be selected from the following courses:

Sci 531	Atomic Structure	2 s.h.
Sci 532	Interrelationships in Science	2 s.h.

 Other courses to be selected from the major in Biology, Chemistry, and Physical Science at discretion of candidate's committee.

- II. Professional Studies — four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:
- | | | | |
|-----|-----|---|-------------|
| Ed | 516 | Statistical Methods in Education I | 2 s.h. |
| Ed | 518 | Seminar in Sensory and Audio-Visual Materials | 2 s.h. |
| Ed | 550 | Thesis | 2 to 4 s.h. |
| Psy | 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy | 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Sci | 510 | Problems in Science Education | 2 s.h. |
- III. Foundations of Education — two (2) semester hours of work to be selected from the following courses:
- | | | | |
|----|-----|--|--------|
| Ed | 511 | Historical Foundations of Education | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed | 513 | Social Foundations of Education | 2 s.h. |
- IV. Research Techniques — the following course is required. It should be scheduled early in the student's program:
- | | | | |
|----|-----|----------------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
|----|-----|----------------------------|--------|

ELEMENTARY SCIENCE

Curriculum for Master of Education Degree

This program does not lead to certification in science at the secondary level. It is designed to provide the elementary teacher with an opportunity to increase his ability to teach science at the elementary level. Students working for this degree with a major in Elementary Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area — fourteen to twenty-two semester hours of work in subject matter content are to be selected from the following courses:
- | | | | |
|------|-----|---|--------|
| Sci | 521 | Recent Advances in Science | 2 s.h. |
| Chem | 580 | Chemistry in Elementary Science Education I | 2 s.h. |
| Chem | 581 | Chemistry in Elementary Science Education II | 2 s.h. |
| Sci | 583 | Physics in Elementary Science Education I | 2 s.h. |
| Sci | 584 | Physics in Elementary Science Education II | 2 s.h. |
| Sci | 586 | Botany in Elementary Science Education | 2 s.h. |
| Sci | 587 | Zoology in Elementary Science Education | 2 s.h. |
| Sci | 588 | Field Biology in Elementary Science Education | 4 s.h. |
| Sci | 589 | Geology in Elementary Science Education | 2 s.h. |
| Sci | 590 | Meteorology in Elementary Science Education | 2 s.h. |
| Sci | 591 | Astronomy in Elementary Science Education | 2 s.h. |
| Math | 521 | Basic Concepts in Mathematics | 2 s.h. |
- II. Professional Studies — four to ten (4-10) semester hours of work including research paper or the thesis to be selected from the following:
- | | | | |
|-----|-----|--|-------------|
| Ed | 516 | Statistical Methods in Education I | 2 s.h. |
| Ed | 518 | Seminar in Sensory and Audio-Visual Materials | 2 s.h. |
| Ed | 550 | Thesis | 2 to 4 s.h. |
| El | 531 | Curriculum Problems in Elementary Education | 2 s.h. |
| El | 533 | Reading Disabilities of Elementary School Children ... | 2 s.h. |
| El | 542 | Arithmetic in Elementary School | 2 s.h. |
| El | 543 | Resource Materials in Elementary Science | 2 s.h. |
| El | 544 | Recent Trends in Elementary Language Arts | 2 s.h. |
| Psy | 531 | Psychology of the Exceptional Child | 2 s.h. |
| Psy | 532 | Studies in Child Adjustment and Guidance | 2 s.h. |
| Sci | 592 | Elementary Science Curriculum | 2 s.h. |
- III. Foundations of Education — two (2) semester hours of work to be selected from the following courses:
- | | | | |
|----|-----|--|--------|
| Ed | 511 | Historical Foundations of Education | 2 s.h. |
| Ed | 512 | Philosophical Foundations of Education | 2 s.h. |
| Ed | 513 | Social Foundations of Education | 2 s.h. |
- IV. Research Techniques — the following course is required. It should be scheduled early in the student's program:
- | | | | |
|----|-----|----------------------------|--------|
| Ed | 515 | Elements of Research | 2 s.h. |
|----|-----|----------------------------|--------|

SOCIAL SCIENCE

Curriculum for Master of Education Degree

Students working for this degree with a major in Social Science will complete the thirty (30) semester hours of work in accordance with the following divisions:

- I. Subject Matter Concentration Area — fourteen to twenty-two (14-22) semester hours of work in subject matter content are to be selected from the following courses: A minimum of 12 semester hours is to be elected in the Social Studies field. A maximum of four semester hours may be elected in allied fields (Geography, English, Foreign Language). Courses must be elected in four of the six Social Science divisions.

HISTORY

SS 531	Economic and Social History of Pennsylvania	2 s.h.
SS 532	U. S.-British Commonwealth Relations	2 s.h.
SS 533	Social and Intellectual History of U. S.	2 s.h.
SS 541	Modern European Problems	2 s.h.
SS 542	Contemporary Latin American Problems	2 s.h.
SS 543	Modern Asian-African Problems	2 s.h.
SS 544	History Seminar (Prerequisite: Ed 515)	2 s.h.

ECONOMICS

SS 551	International Economics	2 s.h.
SS 552	Comparative Economic Systems	2 s.h.
SS 553	Contemporary Economic Issues	2 s.h.
SS 554	Economics Seminar (Prerequisite: Ed 515)	2 s.h.

POLITICAL SCIENCE

SS 571	Foreign Policy Studies	2 s.h.
SS 572	Comparative Political Studies	2 s.h.
SS 573	Regional Political Studies	2 s.h.
SS 574	Political Science Seminar (Prerequisite: Ed 515)	2 s.h.

SOCIOLOGY

SS 562	Deviant Behavior	2 s.h.
SS 563	Intergroup Relations	2 s.h.
SS 564	Sociology Seminar (Prerequisite: Ed 515)	2 s.h.

PHILOSOPHY

SS 581	Problems in Logic	2 s.h.
SS 582	Problems of Ethics	2 s.h.
SS 583	American Philosophical Thought	2 s.h.
SS 584	Philosophy Seminar (Prerequisite: Ed 515)	2 s.h.

ANTHROPOLOGY

SS 591	Studies in Anthropology	2 s.h.
SS 592	Comparative Cultures	2 s.h.
SS 593	The Science of Culture	2 s.h.
SS 594	Anthropology Seminar (Prerequisite: Ed 515)	2 s.h.

- II. Professional Studies — four to ten (4-10) semester hours of work, including Research Paper or the Thesis, to be selected from the following:

Ed 516	Statistical Methods in Education I	2 s.h.
Ed 518	Seminar in Sensory and Audio-Visual Materials	2 s.h.
Ed 550	Thesis	2 to 4 s.h.
Psy 531	Psychology of the Exceptional Child	2 s.h.
Psy 532	Studies in Child Adjustment and Guidance	2 s.h.
SS 510	New Viewpoints in Social Science Instruction	2 s.h.
SS 514	Research Methodologies in the Social Sciences	2 s.h.

- III. Foundations of Education — two (2) semester hours of work to be selected from the following courses:

Ed 511	Historical Foundations of Education	2 s.h.
Ed 512	Philosophical Foundations of Education	2 s.h.
Ed 513	Social Foundations of Education	2 s.h.

- IV. Research Techniques — the following course is required. It should be scheduled early in the student's program:

Ed 515	Elements of Research	2 s.h.
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Social Science Seminar — Preliminary to the selection of a thesis or research topic, the student must program a seminar in one social science seminar.

RESEARCH REQUIREMENT FOR THE DEGREE

The candidate for the Master of Education degree at Indiana must satisfy the research requirement as established by the Graduate Council. This requirement is essentially that the candidate must conduct an independent study related to his major field and report on this study with a written thesis or research project, recital, or other approved form of report.

The study may be in a subject field or in professional education. A thesis will carry from two to four hours of graduate credit as determined by the chairman of the thesis committee and the Dean of the Graduate School. The Dean of the Graduate School will apply the thesis credit to the student's program in the Subject Matter Concentration Area or in the area of Professional Studies depending on the nature of the topic selected. The research project does not carry graduate credit and, unlike the thesis or recital, may not be counted as part of the thirty semester hours required for the degree.

Purposes of the Research Requirement

The initiation, conduct, and description of a research study results in professional growth usually not attained in other ways. The completed thesis or research project certifies that the student is competent to identify a research topic and to pursue research in his field. An acceptable research report should show evidence that the student:

1. Has comprehended the essentials of his problem, has followed a well-organized plan of work, and has presented satisfactory solutions.
2. Has made a comprehensive study of the related literature.
3. Has made an independent and intensive study of the problem.
4. Has a practical working knowledge of research procedures.
5. Has shown the ability to write in a professional style.
6. Has reached conclusions justified by the findings.
7. Has produced a report of value to the subject field or to professional education.

Distinction Between a Thesis and Research Project

The basic distinction between a research project and a thesis is as follows: the project must make a contribution to the student by helping him to improve his teaching or other educational activity; the thesis, in addition, should contribute new knowledge to the field of study.

The project need not represent original research and may consist of adapting other findings to the student's local situation or of repeating other investigations in different circumstances. The thesis, however, should make a contribution to the student's field of inquiry — a far more rigorous condition than that established for the project.

Minor distinctions may be made with regard to the extent or scope of the study and the level of research competence needed to accomplish the study, but these are distinctions subordinate to the basic one given above. Deciding if a particular activity is of a thesis or project nature is primarily the responsibility of the student's adviser who must determine if the study will truly contribute to the field or if it will adapt available data to a new situation.

Steps in Satisfying the Research Requirements

1. The course, "Elements of Research," Ed 515, is designed to help students plan their research. Since many studies require considerable time for completion, it is desirable to schedule Ed 515 early in the graduate program, although it is helpful if the student has completed some work in the major field first. The most advantageous point in the student's program is usually after completing 4 to 8 hours of graduate work. As part of the requirements for Ed 515, the student will prepare a written plan for the investigation of a problem, or research proposal.
2. The student should discuss his proposed research with his adviser and the Director of Research. The student, with the approval of his adviser, should decide on a research project, thesis, recital, or other form of report. Formal approval of the topic may not be obtained until the student has been accepted as a degree candidate (see Admission to Candidacy for the Degree - page 13).
3. The student submits the research proposal to his adviser or the Graduate Office and secures formal approval of the proposal. A research project proposal requires the approval of the adviser, the Director of Research, and the Dean of the Graduate School. A thesis or recital proposal requires the approval of the committee and the Dean of the Graduate School. A thesis committee will normally consist of the adviser, the chairman of the major department, the Director of Research, and at least one other faculty member.
4. After securing formal approval of his research proposal, the student should conduct his investigation and begin writing his report as soon as possible. The adviser and Director of Research should be kept informed on the progress of the study. A rough draft of the project or thesis should be submitted for review well in advance of the deadline date for the final draft.
5. The final draft of a thesis or research project should be submitted as early as possible and preferably well in advance of the deadline date. The deadline date for final draft of the project or thesis or for the recital performance for January graduates is the preceding December 1; for May graduates, April 1; and for August graduates, July 1. The final draft

should be typed and be as free from errors as the student is able to make it. Only minor corrections will be permitted after the deadline date and in the event major revision is required which cannot be completed before this date, the student will be required to postpone graduation. When the final draft has been approved, the student will be given instructions for preparing the finished copies of the project or thesis. A project must be approved by the adviser, the Director of Research, and the Dean of the Graduate School. A thesis or recital must be approved by the student's committee and the Dean of the Graduate School.

6. The finished copies of the project or thesis, together with the required abstracts, must be submitted prior to commencement. The style and format of the finished copies must conform to the style manual and additional instructions adopted by the Graduate School.
7. A duplicate copy of the research proposal or rough draft of a thesis or project should be retained by the student. The Graduate School cannot accept the responsibility for the loss of such materials.

The Advisory System

The purpose of the advisory system is to insure that the student's work follows a coherent, well-balanced, and unified program for his professional growth and development. The advisory responsibility falls into two parts:

1. Prior to admission to candidacy: At this stage the advisory function is essentially the responsibility of the Dean of the Graduate School and includes the following:

- a. To assist the student in preparing his plan of graduate study.
- b. To recommend the student for admission to candidacy upon completion of the necessary requirements.
- c. To aid the student in the selection of an adviser for completion of degree requirements after he is accepted for candidacy.
- d. To encourage the student to attend seminars for the discussion of the nature of the graduate program.

2. After acceptance of candidate for the degree: The graduate student will be assigned or may choose with the approval of the Dean of the Graduate School, a faculty adviser to assist him in his graduate work. Necessary changes in advisers may be made at the discretion of the Dean of the Graduate School. This adviser should be competent in the student's area of specialization, as his primary responsibility is to assist the student in choosing, preparing, and presenting his thesis or project in oral and written form as a demonstration of professional competence.

DEPARTMENT INSTRUCTIONS AND COURSE DESCRIPTIONS

ART

The graduate program in Art is based on the assumption that the better artist is also the better teacher. This curriculum makes it possible for students to pursue a balanced program of professional studies combined with the fine and applied arts and crafts, to specialize in art education, art in culture, design, graphic design or even within one of the disciplines under these headings. The student should analyze the requirements for the degree in connection with his own interest and then select courses to meet his individual needs.

Art 510 Art and the Exceptional Child 2 s.h.

Recent trends in education have required more specific understanding of particular students. This course is designed to consider the characteristics and needs of the mentally retarded and the intellectually gifted child with particular emphasis on the art aspects of their education.

Art 511 Art Supervision and Administration 2 s.h.

This course offers a study of the organization, direction and supervision of programs of art education in grades 1-12, with emphasis placed on the administrative aspect. Curriculum development, scheduling, the selection, evaluation and requisitioning of art materials, guidance of art and classroom teachers (in-service training), multi-sensory materials, personnel selection, public relations and physical facilities are typical problems.

Art 512 Curriculum Development in Art Education 2 s.h.

This course deals with the study of existing programs in terms of analysis, evaluation and synthesis.

Programs of art education at all levels will be discussed and designed consistent with current and accepted philosophies and methods in art education. Major area of concentration will be the creative, mental and artistic growth and development of children and youth in a program that stresses continuity and logical sequences of art activities.

Art 513 Evaluation of Growth in Art Education 2 s.h.

This course is designed for those students who have little background in child growth in art. Methods and techniques for different age levels, and classroom situations, creative and mental growth of the child, and evaluation of children's art are included in this study.

Art 515 Research in Art Education 2 s.h.

Reading in the area of research in art education will be stressed along with critical study and analysis of specific research reports. Opportunity will also be provided to review research in order to search out threads of continuity and thus identify current problems so that the student will have a chance to define his own research problem or thesis. Prerequisite: Ed 515.

Art 521 Contemporary Movements in Art 2 s.h.

Current philosophies and trends in fine arts and art education as they apply to human growth and development will be studied. Research and round table discussion of contemporary art forms will help the student to discover the concepts involved in art expression and how they evolved. (Non-Art Majors.)

Art 522 Art In America 2 s.h.

This course surveys American art and its relation to the development of American ideas and ideals.

Art 523 Aesthetics and Art Criticism 2 s.h.

This course explores the various philosophic theories of art and art products. An attempt will be made not only to relate these theories to the senses and form itself, but also to technical, psychological, and cultural values. The primary concepts explored are play, illusion, imitation, beauty, emotional expression, imagination, empathy, creativity, and experience. Some time will be given to forms of art that are not primarily visual, including music, dance, literature and poetry.

Art 524 Art of the East 2 s.h.

The aspects of Eastern Art will be studied as to the nature of their origin, meaning, and place in contemporary world culture.

Art 525 Architectural Influences in a Contemporary Society 2 s.h.

Architecture is studied in its relation to the needs of contemporary life. Experimental problems in structure and aesthetics as related to architecture are explored. Attempts are made to search out the historical roots of many contemporary styles of architecture.

Art 526 Exotic Art and Art of Latin America 2 s.h.

Not all cultures are of Graeco-Roman heritage. This course will be designed around the art of other cultures, sometimes called primitive, in order that we may recognize the nature of the artistic contribution of these peoples.

Art 527 Renaissance Art 2 s.h.

This is the study of the great art achievements of the Renaissance in the fields of painting, architecture, sculpture, and the minor arts. Achievements in the humanities and their relationships are studied against the background of the social, economic and political developments of the era.

Art 528 World Art Since 1875 2 s.h.

The ferment which began in the French Revolution and carried through World Wars I and II has been accompanied by similar revolutions and upheavals in human life and art. This course will consider the discoveries and advances in artistic expression in modern times. Subject matter for study may be found in any or all of the arts.

Art 540-541-542 Graduate Studio in Ceramics I, II, III 2-6 s.h.

These advanced courses in ceramics emphasize the total working process — the selection and preparation of clay bodies, manipulation of clay to achieve expressive form, exploration of decorative techniques. Acquiring familiarity with glaze materials and ability to formulate glazes, as well as control of the firing process, are requisites. Search for sources of equipment and supplies lead into the related aspects of studio planning.

Art 543 Exhibition Techniques 2 s.h.

Presenting works of art well has become the duty of many in the field of art. This course will consider the requirements of Museology as problems in the design of display installations. Field trips will be taken to museums in the area.

Art 544-545-546 Graduate Studio in Fabrics I, II, III 2-6 s.h.

The fundamentals of fabric construction and some history of weaving processes are discussed. Warping, threading and basic weaves will be included in Studio I.

Studio II and III will consider drafting and work on more complex harness looms. The experimental attitude will be maintained in all classes.

Art 547-548-549 Graduate Studio in Jewelry and Metal Work I, II, III 2-6 s.h.

Advanced study dealing with specialized problems in the design and execution of metal work and jewelry. A thesis may be developed based upon research in one of the areas relating to this field, history, materials, tools, processes, or teaching techniques of the craft.

Art 550-551-552 Graduate Studio in Sculpture I, II, III 2-6 s.h.

This is an advanced course in which students are expected to work on more complex problems of sculpture. A student may explore one or several sculpture or modeling media.

Art 553-554-555 Graduate Studio in Wood Work I, II, III 2-6 s.h.

Specialized study and experiences are related to the design and execution of problems relating to wood as a crafts material. Opportunity is presented for more intensive exploration of the materials and processes of this craft employing both hand and power tools.

Art 556 Graduate Studio in Theater Arts or Dramatic Arts 2 s.h.

The limitations and possibilities of the stage are considered. Practical stage experience is gained through the application of the elements of form, scale, proportion, color, lighting, and construction in the production of a play. A variety of design is experienced through the construction of model sets. Materials are organized for both classroom and auditorium programs.

Art 561 Graduate Studio in Drawing 2 s.h.

Drawing as a language is the principle concern of this advanced course. The continued development of skill in communication and expression in all kinds of materials and media is an objective. The drawing as an intimate work of the artist will be stressed.

Art 562-563-564 Graduate Studio in Oil Painting I, II, III 2-6 s.h.

Traditional and contemporary methods and techniques in the area of plastic painting media are experienced. Composition, in relation to the modern painters problems, is stressed. Opportunity is presented for exploration and specialization in depth as well as breadth.

Art 565-566-567 Graduate Studio in Water Color Painting I, II, III 2-6 s.h.

Painting in opaque, transparent and mixed water color media will be attempted in the contemporary and historical procedures. Designed painting and emotional expression will be carried along together. Experimentation in combinations with other media are encouraged.

Art 568-569-570 Graduate Studio in Print Making I, II, III 2-6 s.h.

This is a study on the graduate level of the modes, media, material, techniques and processes of the graphic arts and their use in expression. The student may concentrate on the intensive exploration of one media in depth or explore a number of media for breadth of experience.

Art 571 Graduate Studio in Mural Painting 2 s.h.

In this course the individual student should acquire a working knowledge of the materials and processes employed in mural painting, such as fresco, encaustic, oil and mosaic. The historical development of the mural as an art form should be considered as to its influence upon, and reference to, the modern mural.

BUSINESS EDUCATION

The graduate program in Business Education at Indiana is primarily designed to permit the student to broaden his understanding of the business world and to study his teaching procedures in the light of new experiences.

A study of the curriculum presently offered indicates that from fourteen to sixteen credit hours are to be taken in a subject matter concentration area. Students should select courses in the basic business area along with courses from at least one of the areas concerned with either accounting, secretarial or retailing. Two courses which all degree candidates must schedule are Bus 510, Business Communications and Report Writing, and Bus 552, Seminar in Business Education.

Courses in the subject matter concentration area should be scheduled early, making use of those courses in the general studies and foundation of education areas as they can be fitted into one's schedule as the work progresses. The course in Elements of Research should be taken early but not as a first course. In this course plans for a project or thesis are made — this part of the program should not be delayed.

Bus 500 Accounting Systems and Management 2 s.h.

A study of the accounting principles as applied in constructing accounting systems. Special attention will be given to the problems of management as they relate to accounting systems. This is to be done with the idea of building a system to give management the information desired for effective operation of the business.

Bus 501 Principles of Tax Accounting 2 s.h.

The fundamentals of Federal Income Tax Accounting are presented under the latest amendments to the Internal Revenue Code. The various income tax blanks and forms are presented and filled in with special emphasis upon the returns of individuals, single proprietorships and partnerships.

Bus 502 Advanced Tax Accounting 2 s.h.

This course is designed to give the student further familiarity with the Federal Income Tax law with emphasis upon the law concerning corporate returns, estates and trusts, federal estate tax and gift tax. Bus 501 is a prerequisite to taking this course.

Bus 503 Financial Statement Analysis 2 s.h.

This course is designed to give a detailed analysis and interpretation of financial statements with advanced problems supporting the theory presented. Particular types of statements as they apply to public utilities, industrials, and moneyed corporations are introduced.

Bus 510 Business Communications and Report Writing 2 s.h.

A study and composition of effective written communications. Emphasis on the positive approach, clear statements, and good form and structure. The organization and preparation of reports of the types used in education, business and government. Techniques of collecting, interpreting, and presenting information useful to executives will be studied.

Bus 511 Advanced Shorthand for Teachers 2 s.h.

To provide teachers of stenography and transcription with an opportunity to increase their proficiency in writing and transcribing Gregg shorthand, thus enabling them (1) to demonstrate skills in the classroom, and (2) to analyze student learning difficulties; to review the basic techniques of skill development; to provide practice in rhythmic and office style dictation; to increase ability to take sustained dictation by use of modern teaching aids including tapes and records; and to enable the teacher to write fluent shorthand outlines in dictation at the chalkboard.

Bus 512 Office Organization and Management 2 s.h.

Duties and responsibilities of the office manager; principles of practical office management and their application. Includes survey and analysis development of manuals and their use; selection, training, pay and promotion of office employees; controlling expense and measuring office efficiency; quality and quantity standards; purchase and use of equipment; and report writing.

Bus 520 Retail Organization and Management 2 s.h.

This course will be directed toward the many problems of retail management. It will include a study of the present day trends in retailing, personnel management, merchandise control, pricing, promotion, services, accounting, and expense control.

Bus 521 Principles of Marketing 2 s.h.

A study of the risks, costs, and methods in the distribution of goods of farm and industry. A comprehensive analysis of such problems as research, competition, pricing, and laws in marketing goods from the manufacturer or producer to the consumer.

Bus 530 Money and Banking 2 s.h.

The course deals with the development of the monetary system of this country with particular attention to its present structure of our banking system. Relationship between our monetary system and our economy, means of control of our monetary system and the function and structure of the Federal Reserve System will be considered.

Bus 531 Principles of Investment in Securities 2 s.h.

It is the purpose of this course to familiarize the student with the many forms of investment possibilities which exist. Attention will be given to the operation of the stock markets, concepts and terminology of investing, mutual funds and their function, investment clubs and the problems involved in making investments through brokers, bankers, and stock promoters.

Bus 532 Current Business Economic Problems 2 s.h.

Selected economic problems of current interest and concern to society will be analyzed. An examination will be made of basic economic principles and theories as well as the thinking of recognized economists in connection with the problems studied.

Bus 533 Case Problems in Business Law 2 s.h.

It is to be assumed that the student has a knowledge and background of the theory of business law prior to taking this course. The course deals with the solution of case problems as applied to the various topics in the field of business law.

Bus 534 Consumer Economic Problems 2 s.h.

A program for the education of intelligent consumers is planned for this course. How to gain the maximum satisfaction from goods and services available to the consumer is an important consideration. An effort will be made to develop an appreciation of the problems of the producer, distributor as well as those of the consumer.

Bus 540 Office or Retail Work Experience 4 s.h.

The graduate student who has not had extensive business experience is given the opportunity to work full-time for six weeks during the summer in a business position under the supervision of the college. Evening seminars will be held weekly to discuss problems related to the work experience program. A written report of the experience will be required.

Bus 550 Principles and Problems of Business Education 2 s.h.

The purpose of this course is to survey the basic principles and practices of business education. Among the topics considered are: history of the high school business program, purposes, attitudes of management and labor toward education, the relationship of general education to business education, and trends in the field.

Bus 551 Administration and Supervision of Business Education 2 s.h.

This course offers an opportunity to study the problems of organizing, directing, and supervising business education programs. Such matters as the functions of the administrator and supervisor of business education, textbook selection, teacher selection, testing programs, conferences, equipment and layout are considered.

Bus 552 Seminar in Business Education 2 s.h.

This course is devoted to a critical examination and evaluation of current literature and research in business education. The graduate student is expected to conduct an extensive study of literature representative of the entire field of business and an intensive study in one or more specialized areas compatible with his professional interests and activities. Investigation of procedures used in current and outstanding research studies is emphasized.

Bus 560 Improvement of Instruction in Secretarial Courses 2 s.h.

A course for experienced business teachers. Teaching procedures basic to the development of vocational proficiency in shorthand, typewriting, and transcription including: content; methods; teaching aids; available instructional materials; measurement of skills; and standards of achievement.

Bus 561 Improvement of Instruction in Basic Business Courses 2 s.h.

This course is designed for experienced classroom teachers and for prospective teachers specializing in the basic business subjects. It deals with the aims of business education; its relation to vocational and general education; available instructional materials; curricular organization; teaching aids and devices; techniques for improving instruction; and other teaching problems of such subjects as Junior business training or general business, economic geography, business law, consumer education, salesmanship, and business economics.

Bus 562 Improvement of Instruction in Bookkeeping and Business Arithmetic 2 s.h.

A study of problems and techniques in the teaching of bookkeeping and arithmetic for experienced and prospective business teachers. Topics include: objectives; the place of bookkeeping and arithmetic in the curriculum; planning for teaching; techniques for improving instruction; resource materials; standards; construction of courses to meet special needs; the use of practice sets; testing and grading; and visual aids. Teaching problems of students will be emphasized.

Bus 570 Economic Backgrounds of Business 2 s.h.

This course is designed to provide a thorough overview of the economic environment in which business and other agencies must operate. The student will gain a broad perspective of business operations through such topics as business organization and management, consumption of goods, business risks, business cycle, budgeting and investments. This course is not open to Business Education Majors, but is designed for a general studies course in the Elementary and other programs.

EDUCATION

Ed 511 Historical Foundations of Education 2 s.h.

A study of the historical development of American education. European influences on the philosophies and practices of American schools will serve as a background for the course. Emphasis will be placed on the development of education in America as influenced by various individuals and schools of thought. Historical trends will be related to current problems and practices in education.

Ed 512 Philosophical Foundations of Education 2 s.h.

The development of principles upon which to base instruction, recent developments in scientific methodology, and theories of curriculum and school organization will be considered in this course. Stress will be placed upon the essential phases involved in building an individual working philosophy of education.

Ed 513 Social Foundations of Education 2 s.h.

This course will deal with those social and cultural forces which influence education and the ways in which education has been affected by them. Particular stress will be placed upon current problems as they relate to the entire educational system and to curricular problems and practices in today's schools.

Ed 515 Elements of Research 2 s.h.

Selection of a research problem, collection of data, types of research, the research report, and the use of the library in connection with the research problems will be studied. Elements of statistics are introduced. This course provides background for the preparation of the thesis or research project, and enables the student to become an intelligent consumer of the products of educational research. As part of the requirements for this course the student will prepare a written plan for a research project or thesis.

Ed 516 Statistical Methods in Education I 2 s.h.

Consists of measurement and statistical techniques as used in teaching, school administration, and common educational research. The basic descriptive statistics, including measures of central tendency, variability, and correlation will be developed. The reliability and validity of test scores will also be discussed. Emphasis will be placed upon the use of the statistical techniques studied and their interpretation.

Ed 517 Statistical Methods in Education II 2 s.h.

Advanced statistical devices for educational research workers. The basic concepts of statistical inference and prediction will be developed, including regression and prediction, hypothesis testing, analysis of variance, and partial and multiple correlation. Emphasis will be placed upon the use and interpretation of the techniques studied. Prerequisite: Ed 516 or equivalent.

Ed 518 Seminar in Sensory and Audio-Visual Materials 2 s.h.

This is a psychology of learning course. Major emphasis will be placed upon the differences among learning, materials, learners and teaching methods. The student will have the opportunity to do literary research in these areas.

Ed 522 Principles and Practices in Speech Improvement 2 s.h.

This course will provide for a study of the normal development of speech, classroom methods in speech improvement, and special consideration for children handicapped in speech or hearing. Library research, project work, demonstrations and experimentation will be heavily stressed.

Ed 531 Reading Problems of Junior and Senior High School Students 2 s.h.

This course is planned to help the secondary or special teacher to understand and participate in the developmental reading program at the Junior and Senior High School levels, and to work with those pupils who are not able to achieve satisfactorily because of reading problems.

Special help is given in the basic reading and study skills, the diagnosis and correction of reading difficulties, the techniques of improving rate and comprehension, and the development of readiness for reading in the content field.

Ed 534-535 The Diagnosis and Remediation in Reading-Theory and Clinical Practice 4 s.h.

This course deals with understandings, techniques, and materials that aid teachers to prevent, discover, and correct the weaknesses and wrong learnings in reading of the student who is not achieving satisfactorily. The instruments for study will include a variety of tests, informal evaluations, and other helps. All areas and all levels of reading are considered. This involves two (2) courses each offering two (2) semester hours credit. Prerequisite: Course(s) in Reading — Undergraduate, EI 533 or Ed 531.

Ed 540 Supervision of Student Teaching 2 s.h.

Designed for supervising teachers and others working with student teachers, this course provides opportunity for the development of pertinent materials and for continuous evaluation of various aspects of the student teaching program. Stress is also given to evaluative procedures used in working with prospective teachers. Basic principles underlying an effective student teaching program are examined from both a theoretical and applied viewpoint. Prerequisite: Teaching certificate and teaching experience.

Ed 550 Thesis or Recital 2-4 s.h.

Students writing a thesis for credit will register for this course.

Recital: Graduate students in music education may prepare and perform a formal recital under the guidance of their private teacher in their major performing area. Approval for the presentation of a recital in lieu of the thesis must be secured from the graduate committee of the Music Education Department. A student should secure approval for this event early in his graduate program, but the actual performance of the recital should occur close to the end of his graduate program.

ELEMENTARY

EI 531 Curriculum Problems in Elementary Education 2 s.h.

The curriculum will be studied in relation to local needs and resources. Special attention will be given to contemporary forms of organization and procedures for curriculum development. A student will concentrate his studies on a specific problem or area of interest.

EI 533 Reading Disabilities of Elementary School Children 2 s.h.

This course will consider the identification, causes, and correction of reading disabilities. The mechanics, psychology of reading, and emotional factors involved will be studied.

EI 541 Special Problems in Elementary Social Studies 2 s.h.

The content of the social studies in the elementary school as it contributes to world understanding and the American cultural heritage will be included in this course. Each student will concentrate his studies on a special problem or area of interest.

El 542 Arithmetic in the Elementary School 2 s.h.

An overview of the development of arithmetic as a part of the elementary school curriculum will be presented. It will emphasize curriculum development based upon research in arithmetic, special problems in the teaching of arithmetic and the literature which should be known to a teacher of arithmetic. Prerequisite: The Teaching of Arithmetic.

El 543 Resource Materials in Elementary Science 2 s.h.

This course is designed to give the elementary teacher experience with the literature, equipment, and materials used in teaching science in the elementary school. References dealing with experiments, demonstrations, and identification of plants and animals will be studied. Experiments and demonstrations will be emphasized. Science kits will be prepared which contain basic equipment that may be used in classroom situations. Field trips will be taken to observe materials in real life situations. Given in summer school only.

El 544 Recent Trends in Elementary Language Arts 2 s.h.

This course will deal with trends, problems, and recent contributions of research in the language arts. Areas will include elementary English, spelling, penmanship, and children's literature. Each student will concentrate his studies on a special problem or area of interest.

El 545 Experimental Studies in Art Education 2 s.h.

Teachers will undertake art experiences in various media as they are adapted to the provision of art experiences for the child. Emphasis will be placed on the stages of growth, type of motivation, and ways of administering stimuli. The class will study the exceptional child to learn to recognize and encourage evidences of art potential as well as wholesome self-expression.

El 546 Modern Procedures and Skills in Elementary Music 2 s.h.

The purpose of this course is to provide the elementary teachers with new developments and techniques recommended for music education.

El 547 Resources Materials in Children's Literature 2 s.h.

This course will be concerned with the selection and evaluation of children's literature as a resource for teaching and learning. Although traditional and modern literature in prose and poetry will be considered, much emphasis will be given to non-fiction. Ways will be studied to use these materials in the elementary school program.

ENGLISH

A candidate for a degree in English should plan to work on his research topic while he is completing other course requirements. Following Ed 515, Elements of Research, which should be taken early in the degree program but not as a first course, he should enroll in EngS 510, Bibliographical Methods in English, in order to develop his thesis or project proposal. The thesis document itself, which will be completed independently after the proposal has been approved, will be granted no more than two hours' credit. A project is granted no course credit even though it satisfies a requirement for the degree.

EngS 510 Bibliographical Methods in English 2 s.h.

This course offers the student practical training in the special methods and materials of research in English. Required of all majors in English. Ed 515, Elements of Research, is a prerequisite.

EngS 511 Seminar in the Teaching of English in the Secondary School 2 s.h.

A seminar to explore the recent developments in the teaching of high school English. Open only to those holding a certificate to teach English.

EngS 512 American English Grammar 2 s.h.

In this course a study is made of the analysis of language patterns by the methods of structural linguistics. Study is also made of the principles for establishing levels of usage. Both areas are examined for implications in the teaching of English.

EngS 521 Modern European Fiction 2 s.h.

This course offers an intensive study in translation of the major fiction writers of the twentieth century exclusive of British and American. The older generation — Proust, Gide, Kafka, and Mann — will be studied in relation to representatives of contemporary Europe such as Camus, Moravia, Silone, and Sartre.

EngS 522 Chaucer 2 s.h.

The works of Geoffrey Chaucer are studied with special attention to the *Canterbury Tales* and *Troilus and Criseyde*. Pronunciation, versification, language, and textual problems will receive consideration.

EngS 523 The Development of Modern English 2 s.h.

The course will study the origins and growth of the English language and the sources of English words. An examination will be made of the changes in English usage, with emphasis on the varieties of current spoken and written usage as a result of geographical, class, and situational differences.

EngS 524 Contemporary Poetry 2 s.h.

The course is concentrated in tendencies in modern poetry from Thomas Hardy and E. A. Robinson to the present, with special attention to major figures British and American. Emphasis is placed upon appreciation of the poet's technique and an understanding of the contemporary scene as it supplies inspiration and determines theme.

EngS 525 The Early English Drama 2 s.h.

The development of the English drama from 900 to 1500, with attention to classical and indigenous influences on specific plays and types of plays, will be studied.

EngS 526 Shakespeare and His Contemporaries 2 s.h.

Plays by Shakespeare and some of his predecessors, contemporaries, and successors will be read. Plays will be chosen from the work of Marlowe, Lyly, Greene, Kyd, Jonson, Dekker, Beaumont, Fletcher, Webster, and Shakespeare.

EngS 527 Restoration and Eighteenth Century Drama 2 s.h.

The British theatre from the Restoration period to Sheridan is studied in connection with the literary, historical, and social developments of the times.

EngS 528 Milton 2 s.h.

This course provides for special studies in the prose and poetry of John Milton, with attention paid chiefly to *Paradise Lost* and the lyrics.

EngS 529 The Romantic Poets 2 s.h.

This course will concentrate on the poetic values, religious conflicts, and social issues that affected the writings of the major Romantic poets. Practice will be given in analyzing form and tone as a guide to meaning.

EngS 530 Tennyson and Browning 2 s.h.

This course provides for special studies in the poetry of Tennyson and Browning. Attention is given to the Victorian milieu and to the development of Tennyson's and Browning's philosophy as it is reflected in their work.

EngS 531A Major Writers: Emerson, Hawthorne, and Thoreau 2 s.h.

Emphasis is on a discussion of the ideas developed in *Walden*, *A Week on the Concord and Merrimac Rivers*, Emerson's *Essays*, *First and Second Series*, and several of Hawthorne's novels, as well as some of the shorter writings. Each student is responsible for investigating one particular area of comparison among the writers.

EngS 531B Major Writers: Faulkner and Hemingway 2 s.h.

This course considers the novels and short stories of William Faulkner and Ernest Hemingway, with attention to each writer's influence on modern fiction.

EngS 531C Major Writers: Hardy and Meredith 2 s.h.

Special studies are conducted in the poetry and fiction of two major writers of the late nineteenth century.

EngS 531D Major Writers: Whitman and Twain 2 s.h.

The course considers these writers in relation to the development of realism in American Literature. The poetry and prose of Whitman are studied intensively. Students read selected novels and short fiction by Twain.

EngS 531E Major Writers: Poe and Melville 2 s.h.

The course deals with romantic elements and symbolism in the fiction and poetry of Poe and Melville's major writings. Attention is also given to the influence of each writer on later fiction.

EngS 531F Major Writers: Henry James 2 s.h.

This course provides for extensive and analytical reading of short stories, novels and criticism of Henry James with attention to his influence on modern fiction as craftsman and critic.

EngS 533 British Drama Since 1880 2 s.h.

The modern temper in British drama is explored through modern British dramatists such as Pinero, Barrie, Milne, Maugham, Galsworthy, Priestly, Shaw, and some of the Irish dramatists.

EngS 534 Types of the Novel 2 s.h.

Standards are established for such genres of the novel as the Historical Romance, the Novel of Ideas, the Novel of Manners, and Satiric Fantasy. English and American novels are read in several of these categories.

EngS 535 Criticism 2 s.h.

This is a course in the principles of literary criticism. Attention will be paid to major works of critical theory and to practice in the application of these principles.

EngS 536 Studies in Middle English and Renaissance Literature 2 s.h.

This course is a seminar in which a major sociological or ideological tradition of the Middle Ages and Renaissance will be studied to reveal its influence upon the literature of those periods. Among the areas of learning and tradition which may be considered are the chivalric code; courtly love and love melancholy; Greek, Roman, and Hebrew literature and mythology, and medieval science and medicine.

EngS 537 Modern American Fiction 2 s.h.

Trends in contemporary American fiction provide a basis for special studies in such figures as Dreiser, Anderson, Fitzgerald, Lewis, Dos Passos, and Wolfe.

EngS 538 Victorian Prose 2 s.h.

This course examines the major social, political, economic, and religious issues as revealed in the prose writings of the period.

EngS 539 The Metaphysical Poets 2 s.h.

The characteristic lyric poets of the seventeenth century from Donne to Cowley are studied in relation to changing social and political conditions.

EngS 540 Twentieth Century American Drama 2 s.h.

The contributions of the major dramatists of the twentieth century to the development of the American theater are considered.

EngS 541 The Rise of American Regionalism 2 s.h.

This course considers writers who drew their materials from the culture peculiar to a particular area. Such local colorists as Page, Harte, Harris, and Jewett are read.

EngS 542 Contemporary British Novelists 2 s.h.

This course deals with the novels of Joyce Cary, Graham Greene, and Evelyn Waugh. It relates their work to trends in current British fiction.

EngS 543 The Forms of Drama 2 s.h.

A study of the structure of the play and the elements of action, theme, and character are studied in representative plays of various periods and cultures.

EngS 544 Seminar in the Psychology of Language 2 s.h.

Individual investigation is encouraged in this seminar into the research in language as behavior.

EngS 545 The Age of Pope 2 s.h.

A close examination of the works of Alexander Pope and those of his contemporaries who most strongly influenced the rise of neo-classicism in England during the early 18th century.

EngS 550 Workshop in Play Production 6 s.h.

The study of various styles of production and of the principles of directing in the preparation of plays for a high school audience. Included will be analysis of the script, methods of casting and rehearsal, and the technical aspects of production. The summer theater is used as a laboratory for observation and participation. (One day of lecture and library work, four days of laboratory.)

FOREIGN LANGUAGES

FL 521 Language and Society 2 s.h.

The work of this course is designed to inform the student as to the salient facts of language and its fundamental role in the development and continuity of society and culture. Some points considered are: language families and their characteristics, factors of linguistic change and development, reciprocal influences of culture and language, linguistic borrowing, language and religion, and systems of writing.

FL 522 Applied Linguistics 2 s.h.

This course makes specific application to one language of the major principles of FL 521, Language and Society. The chosen language is examined in terms of family, structural type, development, the culture of which it is a vehicle, the influences it has undergone and exercised, and its role in the world today. Constant comparisons and contrasts are made with English. The course will constitute an introduction to the chosen language. (Russian in 1962-63), but linguistic considerations will receive major stress. Prerequisite: FL 521, Language and Society.

GEOGRAPHY

The pursuit of a Master of Education Degree with a major in Geography presupposes that certain subjects normally included in the undergraduate major in geography have been successfully completed. The department, however, will accept outstanding applicants with limited background in Geography with the understanding that deficiencies will be made up, either through extra course work or through a personal reading program.

The Department regards as one of its major functions instruction in Geography as part of the School's program for liberal education. As such, certain courses are offered to students having limited backgrounds in geography (Geog 500-549). The minimum requirement for entering these courses is undergraduate World Geography, (Geog 111).

Geog 521 Advanced Human Geography 2 s.h.

Advanced Human Geography will develop case studies of particular regions in various parts of the world and will analyze, where appropriate, the effect of geography on major events in the news. The course builds onto the principles of geography learned in undergraduate World Geography.

Geog 522 Political Geography 2 s.h.

Geographic factors and conditions are analyzed as they are related to the character and function of states. Political institutions are evaluated in light of modern and historic geographic conditions. Emphasis is given to the great world powers and geopolitical thought.

Geog 523 Urban Geography 2 s.h.

An analysis is made of city types, patterns, and functions as influenced by geographic conditions and other factors. City planning techniques and field study are utilized.

Geog 525-540 Geography Seminars 2 s.h.

Seminars are designed to let the student develop to his greatest potential. Each region is examined in detail for soil, topography, climate, vegetation, population, and the interrelationships evolved. Great stress is placed on individual study and class discussion rather than lecture. Prerequisite: World Geography (undergraduate).

Geog 525—Africa, South of the Sahara 2 s.h.

Geog 526—India, Pakistan and Indo-Chinese Peninsula 2 s.h.

Geog 527—Mexico, Middle America and West Indian Islands 2 s.h.

Geog 528—South America 2 s.h.

Geog 530—U.S.S.R. 2 s.h.

Geog 531—Northwestern Europe 2 s.h.

Geog 532—Mediterranean World 2 s.h.

Geog 534—China, Korea and Japan 2 s.h.

Geog 535—Australia and Pacific Islands 2 s.h.

Geog 536—Polar Regions 2 s.h.

Geog 537—Eastern United States 2 s.h.

Geog 538—Western United States 2 s.h.

Geog 539—Canada 2 s.h.

Geog 540—Geography of Pennsylvania 2 s.h.

Geog 541 Agricultural Geography 2 s.h.

World agricultural patterns are the core of this course. Specific problems will be studied in view both of the countries involved and world environment. Stress will be placed upon individual study and research as well as classroom lecture.

Geog 542 Industrial Geography 2 s.h.

Resources useful in the manufacturing process will be studied both as to their location and their place in the international exchange patterns of the world. Individual problems will be the core of the course placing great emphasis on research and reading.

Geog 550A-550B Geographic Readings in Geography (offered every semester on an individual basis by arrangement made through the chairman of the department) 2 s.h.

550A consists of wide readings in the field of geography. Emphasis is upon the classics in the field. Study will be individual and will help the student become critical in his reading and study.

550B consists of reading upon a particular topic or region. Emphasis is upon knowledge and understanding of the selected area of study. Study will be individual and will help the student become more expert with a small area of learning.

Geog 551 Professional Problems in Geographic Education 2 s.h.

Classroom problems and discussions centered about "New Viewpoints in Geography" constitutes the core of this course. Individual reports, group discussion and research will constitute the principal methods of presentation.

Geog 552 Seminar in World Resources 2 s.h.

World resource exploitation and utilization of the agricultural, mineral, forestry, and fishery industries are treated. Problems, such as energy utilization, food distribution, population growth, regional planning, factory location, conservation measures, and foreign trade, are considered.

Geog 554 Physiography of United States 2 s.h.

This course presents a detailed study of the landforms and surface waters of the United States. The origin, classification, and structure of mountains, plains, hills, coast lines, rivers, lakes are discussed as well as the agents causing their birth and subsequent modification, agents such as glaciers, stream erosion, wind abrasion, tides and ocean waves.

Geog 555 Advanced Cartography 2 s.h.

This course covers (1) map preparation to illustrate geographic reports; (2) map preparation from field data (triangulation and plant table); (3) map preparation from aerial photographs; (4) map preparation from existing cartographic materials and intelligence data. Modern techniques of plastic relief, scribing, color separation, as well as the capabilities of the newest cartographic and photogrammetric instruments are presented. Dependent upon class size and student interest, a field trip through one of the modern mapping agencies of the United States government may be arranged.

Geog 556 Map and Photographic Interpretation 2 s.h.

Maps and aerial photographs enable the geography to correctly grasp the spatial perspective of the landscape; they enable him to garner much geologic, economic, land use, transportation, strategic information quickly without costly, lengthy field trips — and often for areas that may be currently closed because of political or other animosity. This course develops the ability of the geographer to obtain a maximum of correct information by becoming familiar with the tools of photogrammetry and aware both of the limitations and usefulness of maps and aerial photographs.

Geog 557 Geographic Research**2 s.h.**

Research in the area of geographical knowledge embraces field and bibliographical studies as well as introduction to authoritative sources. It includes familiarization with geographical concepts, geographic, techniques, laboratory and field procedures, and utilization of instruments and devices. Prerequisite: Ed 515 or six hours of graduate work in geography.

Geog 563 Field Course in Geography**2 s.h.**

The use of field tools and techniques are used in the study of a specific area. Emphasis is upon skill and interpretation of areal patterns of geographic phenomena.

GUIDANCE**Guid 531 Philosophy and Principles of Guidance****2 s.h.**

This course is designed to give an over-all view of the role of guidance in the educational program. It deals with the function and implementation of guidance services, duties of guidance functionaries, types of guidance organizations, and the relation of the curriculum to guidance and of the teachers to the guidance worker. Guidance practices used in helping solve student problems of adjustment are stressed. This course is prerequisite for all other courses in guidance.

Guid 532 Psychology of Growth and Development**2 s.h.**

This course is designed to provide insight into how people grow and develop from infancy to old age. Maturation, learning, and their interrelationships are studied. Physical growth patterns are noted along with emotional, intellectual, and social development with implications for the school, community, and home.

Guid 533 Evaluative Methods in Guidance I**2 s.h.**

Emphasis in this course is placed on intelligence, personality, and special abilities testing. Consideration is given to source, reliability, validity, standardization, and other pertinent aspects. Prerequisite: Education 516.

Guid 534 Evaluative Methods in Guidance II**2 s.h.**

This course will be a selective and intensive study of achievement tests, vocational interest tests, rating scales and other evaluative instruments useful in guidance work. Emphasis will be placed upon criteria for selecting and evaluating tests, and upon interpreting them for purposes of diagnosis and counseling. Prerequisite: Guidance 533.

Guid 535 The Study of the Individual (Case Studies)**2 s.h.**

This course is designed primarily to study the principles, problems, methods, and content involved in developing case studies. Consideration will be given to the kinds and the scope of data needed for understanding and to the role and the relationships of the individuals concerned. Prerequisite: Guidance 534.

Guid 536 Occupational and Educational Information**2 s.h.**

In this course emphasis is placed upon the collection and evaluation of occupational material, its proper filing, and the uses of such information in vocational counseling. Educational information relating to vocational choice and preparation; sources of occupational literature; occupational studies; and vocational surveys are included in the course. Prerequisite: Guidance 531.

Guid 537 Techniques in Counseling 2 s.h.

This course deals with the theories, objectives, principles, and practices involved in counseling as they apply particularly to the work of the classroom teacher and the personnel in guidance. Counseling techniques used with individuals and with groups will be studied, and attention to both diagnosis and treatment will be given. Prerequisite: Guidance 535.

Guid 538 Organizing and Administering the Guidance Program 2 s.h.

In this course various types of patterns in guidance organizations, lines of authority, administrative responsibilities of guidance personnel, and physical facilities needed in administering the guidance program are considered. Emphasis is given to the administration of each of the key guidance services necessary in an adequate guidance program. Prerequisite: Guidance 534.

Guid 539 Group Guidance 2 s.h.

This course deals with the major objectives of guidance through group procedures and the common types of group-guidance activities which will lead to the establishment of student readiness for individual counseling. Articulation program, orientation, home-room activities, courses in adjustment problems, the extra-curricular program, and such special programs as career and college days are considered. Prerequisite: Guidance 531.

Guid 540 Clinical Techniques in Guidance 2 s.h.

This course offers practical experience in the use of clinical instruments in the field of guidance. Prerequisite: Guidance 537.

Guid 551 Individual Diagnosis in Guidance 2 s.h.

Opportunity is provided in this course for intensive study and analysis of case materials involving the personal, social, educational, and vocational problems and adjustment of elementary, secondary, and college students. Possible interpretations of behavior and recommendations for the individual's future will be discussed. Prerequisite: Guidance 540.

HEALTH - PHYSICAL EDUCATION

HPe 521 Advanced Seminar in Health and Safety 2 s.h.

This course will explore the basic health and safety needs of students. It will deal primarily with the results of a study of scientific articles on health which have appeared in medical, public health, and allied professional journals over a period of five years.

HPe 530 Workshop in Community-School Health Education 2 s.h.

This workshop is concerned with school, community and public health including mental health, nutrition, dental, physical education, health services, environment, health teaching and evaluation. Special projects, consultation, visitation, discussions and sources of information and materials will be considered.

HOME ECONOMICS

HE 521 Problems in Family Living 2 s.h.

Transportation, communication, and technological advances with labor saving and other devices are bringing so many possibilities and changes to the home that it is necessary constantly to challenge the home's adjustment. The course will utilize knowledge and research from science, medicine, technology, sociology, economics, art, and psychology in being better able to: provide food, shelter, clothing, utilize time, energy, and material resources; and increase day to day satisfactions in living. Seminars and the problem solving method will be used.

MATHEMATICS

A candidate for the Master of Education Degree with a major in Mathematics must have acceptable undergraduate credit in Mathematics of at least 24 hours. He will complete thirty hours of graduate work in accordance with the requirements indicated and with his adviser, choose the electives best suited to his needs. He should begin work on a topic for a research project or thesis soon after he is accepted as a candidate for the degree.

Math 510 Seminar in Mathematics I 2 s.h.
(Arithmetic, Algebra and Informal Geometry)

This course will acquaint the student with recommended curricula for the 7th, 8th, and 9th grades in mathematics. Emphases will be placed on programs for the slow, the average, and the gifted learners. It is planned that guest lecturers will discuss the Illinois, Maryland, and Yale plans and that demonstration classes will be observed. Students will work on selected individual problems.

Math 511 Seminar in Mathematics II 2 s.h.
(Senior High School Mathematics)

This seminar will acquaint the student with recommended curricula for the 10th, 11th, and 12th grades in mathematics. Emphases will be placed on up-dating curricula now being followed by the in-service teachers. Special attention will be given to teaching topics of equation, sets, graphs, functions, and geometry including elements of analytic geometry. Guest lecturers of Seminar I will be available to this Seminar also.

Math 521 Basic Concepts in Mathematics 2 s.h.

This course aims to develop an understanding of mathematics as a system of thought and will include such topics as kinds of number, scales of notation, the nature of arithmetic operations, basic principles of general numbers and measurements, the history and development of number and some of the contributions to our civilization, and elementary discussions of mathematics developed in the past one hundred years. (Open only to non-mathematics majors).

Math 526 Fundamental Concepts of Analysis 2 s.h.

This course will include discussions of the basic concepts of analysis, including derivative, limit, and integral. Several possible formulations of each concept will be compared. Consideration will be given to applications in the natural and social sciences. The course should enable teachers to develop basic concepts of the calculus in high school courses.

Math 529-530 Differential Equations I, II 4 s.h.

These courses deal primarily with the solution of differential equations of the first and second order and linear equations with constant coefficients, with applications to geometry and physics.

Math 531-532 Advanced Calculus I, II 4 s.h.

The concepts to be developed in these courses are considered basic in analysis. Discussions will pertain to limits and continuity, differential and integral calculus of functions of several variables, line and surface integrals, and an introduction to the theory of infinite series.

Math 533-534 Functions of a Complex Variable I, II 4 s.h.

These courses include a study of the properties of complex numbers and functions, including: analytic and elementary functions, the Cauchy-Goursat integral theorem, contour integrals, power series, residues and poles, conformal mappings, Schwarz-Christoffel transformation, and analytic continuation.

Math 535-536 Functions of a Real Variable I, II 4 s.h.

A systematic development of some of the modern theories of differentiation and integration, which proceeds as follows: the theory of sets, limits, continuity, derivatives, convergence of series, implicit function theorems, and the Lebesgue and Riemann integrals.

Math 539-540 Infinite Series I, II 4 s.h.

A development of the theory of the convergence of series. Among the topics considered are: sequences; series of positive, arbitrary, and variable terms; double series, power series; types of convergency and the associated operations with series.

Math 541-542 Partial Differential Equations I, II 4 s.h.

This is a study of linear and nonlinear partial differential equations of the first and second order with applications to physics.

Math 543-544 Vector Analysis I, II 4 s.h.

These courses will include: the algebra and calculus of vectors, applications to geometry, and other applications.

Math 552 Number Theory 2 s.h.

Topics considered will include: elementary properties of integers, Euclidean algorithm, Prime Numbers, Divisibility, Congruences, Residues and Diophantine equations.

Math 560 Foundations of Algebra 2 s.h.

This course is designed to acquaint the student with the axiomatic structure of algebra. It includes an introduction to the theories of groups, rings, integral domains, and fields. Mathematical models for these theories are taken from the systems of natural numbers, integers, rational numbers, real numbers, complex numbers, finite arithmetics and vector spaces.

Math 561-562 Modern Algebra I, II 4 s.h.

This course is designed to continue the study of the axiomatic structure of algebra to which the student has been introduced in previous courses. This will consist of an intensive study of the properties of groups, rings, ideals, integral domains and fields. Vectors and vector spaces, the theory of matrices and linear transformations, linear spaces and linear and bi-linear forms will be studied.

Math 563-564 Linear Algebra I, II 4 s.h.

Theory of vector spaces and linear transformations. Matrices and determinants. Introduction to linear algebras.

Math 570 Point Set Theory 2 s.h.

Basic concepts of set theory, cardinal numbers, transfinite methods. Construction of the real number system and continuous functions. This course is a partial foundation for all advanced courses in analysis, geometry, and topology.

Math 571-572 Modern Geometry I, II 4 s.h.

A study of the invariant properties of geometric forms under transformation. Linear dependence of points and lines, harmonic division, and cross ratio will be treated, followed by an introduction to projective geometry, metric geometry of the complex plane, affine and space geometry.

Math 573 Topology 2 s.h.

A study of the properties of geometrical figures under topological transformations will be conducted, considering the theory of sets, topological spaces, continuous mappings, compactness, connectedness, and function spaces.

Math 575-576 Projective Geometry I, II 4 s.h.

The topics of Math 571-572 will be developed in more detail from the synthetic point of view. Discussions will concern: projection and section, ideal elements, projectively related forms, harmonic sets and resulting metric properties, polarity, involution, and conic sections from a projective standpoint.

Math 580 Logic 2 s.h.

A survey will be made of the classical and the modern systems of logic and their use in testing the validity of mathematical reasoning. Algebraic structures in logical systems will be discussed, followed by a brief study of effective computability, Godel's theorem, and related topics.

Math 581 Advanced Statistics 2 s.h.

The theory of modern statistical analysis will be developed and used in the solution of practical problems from the fields of education and industry. The major areas of study will be: distribution functions, sampling theory, point estimation, and hypothesis testing. A knowledge of differential and integral calculus is requisite.

Math 582 Theory of Probability 2 s.h.

This course deals with the basic concepts of probability theory with emphasis on practical applications. Topics include: the theory of permutations and combinations, distribution functions, Bernoulli's and Bayes' theorems, and the normal and poisson distributions.

Math 583 Linear Programming 2 s.h.

This will be a basic presentation of the theoretical, computational, and applied areas of linear programming. The simplex method and other computational techniques will be discussed. Applications will pertain to: transportation type, assignment, and combinatorial problems, scheduling and inventory theory, and linear programming. Prerequisite: Math 581.

MUSIC

Mus 501 Advanced Choral Conducting 2 s.h.

An evaluation of each individual's conducting technique will be made and developmental procedures introduced. Material for this process will include the large choral works with and without accompaniment. The student will be expected to further develop skills in reading score.

Mus 502 Advanced Instrumental Conducting 2 s.h.

An intensive study of larger instrumental works will be developed especially treating the specific conducting techniques necessary to the successful performance of these compositions. The skill development of each individual will be stressed.

Mus 503 Music Literature of the Baroque Era 2 s.h.

A stylistic analysis of the period from Monteverdi through J. S. Bach and G. F. Handel. The chronological limitations of the course will be approximately from A. D. 1600 to 1750. Extensive use will be made of the scores and recordings as well as all live performance available in the area.

Mus 504 Music Literature of the Eighteenth Century 2 s.h.

An intensive study of the development of standard musical forms and the modern orchestra. The beginning of the period to be considered is marked by the Mannheim School, continues through Haydn and Mozart, and concludes with early Beethoven.

Mus 505 Music Literature of the Early Romantic Era 2 s.h.

A detailed study of representative compositions and composers from the later works of Beethoven through the Lieber, changing orchestral styles and the romantic opera.

Mus 506 Music Literature of the Late Romantic Era 2 s.h.

A careful consideration of selected works of the latter part of the Nineteenth Century including the Music Drama, the symphonic poem, trends, and styles as they emerged.

Mus 507 Music Literature Since 1900 2 s.h.

A study of the main currents of musical thought and an analysis of trends and styles since the turn of the century with particular reference to selected compositions of Prokofieff, Stravinsky, Milhaud, Bartok, Hindemith, Schoenberg, Shostakovich, et al.

Mus 511 Composition 2 s.h.

Composition of music in the various song forms through the rondos and the larger sonata allegro form. The student will be guided in his compositional attempts by careful analysis of similar forms of major composers. Instruction will be highly individualized as to the forms attempted and will depend considerably on the personal interest of the student.

Mus 512 Advanced Orchestration 2 s.h.

Consideration will be given to the problems of scoring for the full symphony orchestra as well as the string orchestra and the chamber orchestra. Students will be expected to produce a full score and orchestral parts so that the orchestration may be tested by actual playing by the College Symphony.

Mus 513 Advanced Band Scoring 2 s.h.

The problems of scoring for the modern concert band will be considered in detail. Actual scoring for the full symphonic band will be one of the major projects of the course. In addition, the problems of scoring for the brass band, the woodwind choir, and the percussion ensemble will also be considered. Scores and band parts for all projects will be produced by the students for an actual test playing by the College Symphonic Band.

Mus 514 Advanced Choral Arranging 2 s.h.

Four-part writing for chorus will be reviewed. Five, six, seven, and eight-part writing will comprise the large part of the course. Special consideration will be given to the problem of writing for men's voices and for women's voices. All projects of the class will be duplicated in full choral score for actual test performance by one of the major vocal groups of the college.

Mus 515 Canon, Double Counterpoint and Fugue 2 s.h.

The application of contrapuntal techniques through analysis and creative writing. Included will be the study and writing of two- and three-voice canons; two- and three-part inventions; and two-, three-, and four-voice fugues.

Mus 516 Form and Analysis 2 s.h.

A study of representative compositions of various periods, with emphasis on formal harmonic and stylistic analysis. The student will develop the basic analytical techniques necessary for the analysis of music of any period.

Mus 521 Music Literature and Materials 2 s.h.
(see Elementary Education Program)

The purpose of this course is to further enhance the musical background of the elementary teacher through acquaintance with suitable literature and materials.

Mus 530 Music Criticism 2 s.h.

Consideration of the problems involved in evaluating musical performance of many levels. A study of various approaches to critical evaluation of musical performance. Several detailed procedures of approaching the adjudication of musical groups of various levels will be developed.

Mus 531 Administrative Problems in Music Education 2 s.h.

A review of the conventional administrative organization of music education in the public schools. The role of the music director, the music specialist, the consultant, and the music resource teacher will be carefully defined. Consideration will be given to the problems of scheduling in the public school. Current issues concerned with music education and public education in general will be considered, including curriculum development.

Mus 532 Seminar in Music Education 2 s.h.

There will be a considerable amount of freedom in the development of this course. The content each time it is offered will be governed by the specific needs of the students programming the course. These needs will be of two general classes: (1) Strengthening areas of weakness. (2) exploring further, areas of interest.

Mus 533 Comparative Choral Methods 2 s.h.

Materials and procedures of the preparation of vocal groups for public performance. Several accepted, yet contrasting, approaches will be considered, ranging from the Christiansen technique to that of John Finley Williamson. Special attention will be given to program building.

Mus 534 Comparative Instrumental Methods 2 s.h.

Consideration will be given to those materials and procedures which have been proven by actual use in the United States. These various approaches will be compared and given a critical analysis by the class. Rehearsal techniques, efficient use of time and basic motivation will be stressed. The development of interesting programs will be considered.

Mus 535 Psychology of Music Education 2 s.h.

An analysis of the latest evidence produced by the field of psychology in music education as applied in actual classroom situations. A review of the latest developments in psychological research relating to specific music education problems will be included.

Mus 536 Church Music 2 s.h.

The liturgies of all conventional church denominations will be analyzed from the standpoint of the duties of the church choir conductor. Materials and procedures applicable to volunteer groups will be reviewed and analyzed. The problem of rehearsal attendance and basic motivation will be considered. The course will also include recruitment, budgetary problems, and basic relationships with the administration of the church or synagogue involved.

Mus 540-591 Applied Music 1 s.h. each

The following courses will be taught in the form of private lessons geared to the individual student and aiming at maximum progress of each student, depending on the background of the student and the time available:

Mus 540, 541, 542, 543 Private Piano

Mus 544, 545, 546, 547 Private Organ

Mus 548, 549, 550, 551 Private Voice

Mus 552, 553, 554, 555 Private Violin

Mus 556, 557, 558, 559 Private Viola

Mus 560, 561, 562, 563	Private Cello
Mus 564, 565, 566, 567	Private Clarinet
Mus 568, 569, 570, 571	Private Flute
Mus 572, 573, 574, 575	Private Oboe
Mus 576, 577, 578, 579	Private Bassoon
Mus 580, 581, 582, 583	Private Trumpet
Mus 584, 585, 586, 587	Private French Horn
Mus 588, 589, 590, 591	Private Trombone or Baritone

PSYCHOLOGY

Psy 531 Psychology of the Exceptional Child 2 s.h.

This course is designed to aid the student in meeting the needs of those children who deviate from the typical in areas of physical, mental, emotional, and educational developments. Consideration will be given to methods of instruction and curricular material.

Psy 532 Studies in Child Adjustment and Guidance 2 s.h.

This course considers the problems of child adjustment in relation to causative factors. It stresses the dynamics of the child's need to make an adequate adjustment in his relations with other children and adults. The various causes of childhood maladjustment and the classroom teacher's function in remedial treatment will be explored. Case material will be used with direct application to specific problems.

Psy 533 The Psychology of Personality 2 s.h.

A consideration of the varied approaches to the problem of understanding personality. The objective will be to give the student an overview of each of the methods of analyzing personality that has, over an extended period of time, withstood careful scrutiny and investigation. The course will undertake some measure of integration by indicating similarities among the various approaches.

Psy 540 Mental Hygiene 2 s.h.

This course is designed to offer a comprehensive treatment of the basic principles of mental hygiene. Its major concern is the normal, reasonably well-adjusted individual. Special emphasis will be given to the influence of activities carried on in the home, the school, and the community in an effort to stress the importance of prevention in the maintenance of mental health.

Psy 541 Individual Psychometric Techniques: The Binet Scales 2 s.h.

Historical development, administration, scoring, and interpretation of the Stanford-Binet intelligence tests. Enrollment in this course will necessarily be limited, with priority assigned to advanced graduate students pursuing a regular program of study at this college. Programming will be by special arrangement. Prerequisite: Guid. 534 or its equivalent, and consent of the instructor and chairman of the program.

Psy 542 Individual Psychometric Techniques: The Wechsler Scales 2 s.h.

Historical development, administration, scoring, and interpretation of the Wechsler intelligence tests. Enrollment in this course will necessarily be limited, with priority assigned to advanced graduate students pursuing a regular program of study at this college. Programming will be by special arrangement. Prerequisites: Guid. 534 or its equivalent, and consent of the instructor and chairman of the department.

Psy 560 Rorschach**1-3 s.h.**

This course gives a brief study of the Rorschach technique, its administration, scoring, and interpretation. Demonstrations will be presented to the class. Students will give tests under supervision.

Psy 561 Advanced Psychological Practicum**1-4 s.h.**

Structured to provide the graduate student, qualified in either psychology or guidance, with a working experience in a clinical situation. The student will participate, under supervision, in educational, vocational, and personal advisement. Registration only with permission of the Director of the Psychological Clinic.

Psy 565 Measurement of Interests and Personality**2 s.h.**

This course is concerned with an intensive study of selected interest inventories which illustrate different techniques of measurement and with the various instruments used to measure nonintellectual aspects of behavior, as for example, emotional adjustment, social relations, motivation, attitudes, and the like. Projective techniques will not be included in the study of "personality tests." Prerequisite: Guid, 534.

SCIENCE

Due to the rapidly expanding role of Science in our technological society, secondary schools are finding it necessary to increase their offerings in this field. This in turn requires teachers with strong backgrounds of knowledge as well as a greater number of science teachers. The Science Department recognizes the important role of Science in modern society and has planned the graduate program in Science to provide maximum opportunities for science teachers to improve themselves scholastically and in teaching techniques.

Five areas of concentration are available to the graduate student. These are Biology, Physical Science, Chemistry, General Science and Elementary Science. Students who have specialized in any of these areas in undergraduate school will find a wide offering of courses in these content areas at the graduate level. In many instances teachers in one of these areas may wish to take courses in the alternate field. Provision is made for such contingencies. Attention is called to the opportunity for elementary teachers to take courses specifically designed to improve their content and skill in science so that they may contribute to the scientific backgrounds of children at the elementary level.

Prior to his admission to candidacy for a degree, each student is assigned a faculty adviser by the Dean of the Graduate School. With the aid of the adviser, the candidate will select a program which will make a maximum contribution to the development of the candidate in his chosen field. The adviser will also assist the student in choosing, preparing, and presenting his thesis or research project.

Sci 510 Problems in Science Education**2 s.h.**

This course will examine specific classroom problems in the light of current research in science education. Emphasis will be given to new approaches to curriculum revision, the introduction of concepts of modern science, the use of group dynamics in classroom situations, and recent efforts directed towards achieving the objectives of science education. Prerequisite: six hours of science at the graduate level.

Sci 521 Recent Advances in Science (For Non-Science Majors)**2 s.h.**

Designed to bring the student up-to-date with the more recent developments in the field of science that have taken place in the past twenty-five years, this course assumes a background of information of the fundamentals of biological science and physical science.

Sci 531 Atomic Structure**2 s.h.**

This course includes a brief review of fundamentals of electricity and magnetism. Following this, the major topics are charged particles, atomic structure, electromagnetic radiation, waves and particles, electron configurations and atomic spectra. Prerequisites: General Physics, Mathematical Analysis.

Sci 532 Interrelationships in Science**2 s.h.**

This course is designed to help the student to evaluate the major divisions of scientific knowledge. Various problems will be selected and the contribution of biology, chemistry, and physics, to the solution of these problems will be studied. Three hours per week. Prerequisites: Chemistry I, II, Physics I, II, and Biology I, II.

Sci 534 The Solar Family**2 s.h.**

This course is planned as a study of the characteristics and behavior of the planets and their satellites, asteroids, meteor, comets and other phenomena of the solar systems. One of the major topics will be to investigate and criticize several of the theories as to its origin. It will require some treatment of celestial mechanics, a topic which will be briefly reviewed as part of the course, but will not advance to a level which requires a background of calculus.

Sci 535 Geomorphology**2 s.h.**

This course is designed for graduate students who wish to strengthen their background in geology. It provides a review of the agents modifying the surface of the earth and a map study laboratory for topographic map interpretation.

Sci 572 Demonstrations in Chemistry and Physics**2 s.h.**

Classroom and lecture demonstrations to be prepared and presented and evaluated by students and instructor. The course will include some elementary instruction in glassworking. Prerequisites: Chemistry I, II, Physics I, II.

Sci 573-574 Problem-Solving in Physics and Chemistry I, II**4 s.h.**

This course is designed to help the teacher of physics and chemistry, who has a limited background in mathematics, to become more skillful in the solution of problems usually encountered in physics and chemistry courses. It should also provide him with a more adequate background to deal with the problems in his courses in the graduate program.

Biol 533 Biological Literature**2 s.h.**

The purpose of this course is to give the graduate student an opportunity to become more familiar with biological literature and to develop skill in the use of the literature. Periodicals, encyclopedias, handbooks, abstracting journals and other books dealing with the various divisions of biology will be studied. Students are required to conduct a literature search on a selected topic.

Biol 541, 542 Comparative Anatomy I, II**4 s.h.**

This course is a comparative study of the structure of representatives of the classes of vertebrates. The shark, necturus, and cat will be dissected. Three hours per week throughout the year. Prerequisite: Zoology I, II.

Biol 543, 544 Embryology I, II**4 s.h.**

A comprehensive course tracing the maturation of gametes, fertilization, cleavage, differentiation, organogenesis, and development in the vertebrates. Major emphasis will be placed on such phenomena in the chick, with correlative work on the frog and pig. A two-semester course with both lecture and laboratory work that meets three hours a week. Prerequisites: Zoology I, II, Comparative Anatomy is desirable.

Biol 545 Microtechnique**2 s.h.**

A course designed to acquaint the student with the procedures involved in the production of microscope slides. Techniques of preparing whole mounts, microtome sections and serial sections will be covered. Both plant and animal materials will be used. A one-semester course that will meet three hours per week, at least two of which will be spent in independent slide preparation. Prerequisites: Botany I, II, Zoology I, II.

Biol 551, 552 Taxonomy of Plants I, II**4 s.h.**

This course includes the collection, identification, and classification of vascular plant species with special emphasis on family characteristics and phylogeny. Three hours per week throughout the year. Prerequisite: Botany I, II.

Biol 553 Taxonomy of Animals**2 s.h.**

This course is a study of the classification system and its application to the identification of animals. The basic principles of taxonomy, rules of nomenclature, a synoptic history of classification and the "old" and "new" taxonomy will be included. A field study or original library project on some taxonomic problem is required.

Biol 555 Principles of Plant and Animal Distribution**2 s.h.**

Consideration will be given to the scientific principles underlying the geographic distribution of plants and animals. The factors causing speciation, the centers of origin, and the effects of climate, barriers, and geologic age on migration and range will be studied. Prerequisites: Botany I, II, Zoology I, II.

Biol 561 Plant Structure**2 s.h.**

The anatomy of typical representatives of the vascular plants will be studied. Consideration will be given to the variations in structure and development of root, stem, leaf, and flower among various plant families. Prerequisite: Botany I, II.

Biol 562 Animal Physiology**2 s.h.**

Through lectures and laboratory work, students will consider the events of digestion, molecular transport of nutrients and wastes, gaseous exchange, excretion, muscular movement, and control by endocrines and nervous tissue. Prerequisites: Zoology I, II, Inorganic Chemistry I, II.

Biol 563 Physiology of Plants**2 s.h.**

Cell physiology including respiration, photosynthesis, fermentation, enzyme catalysis, auxins, and membrane phenomena will be stressed. Tropisms, mineral nutrition, water metabolism, and the translocation of solutes are additional areas of discussion and experimentation.

Biol 564 Problems in Biology**2 s.h.**

The course offers the opportunity for a student to conduct a literature search combined with controlled experimentation on a limited biological problem. Each student will choose a problem of interest from a field previously studied and work in consultation with his instructor. Prerequisites: six hours of graduate work in Biology and consent of the department.

Biol 565 Field Natural History**2 s.h.**

This course is designed for those high school biology teachers who wish to increase their knowledge of the biology of their surroundings, particularly those who have had limited opportunity for this type of work in their undergraduate programs. Field trips will be conducted to areas of interest in Western Pennsylvania. Each student will be required to work on a field problem which will be selected through consultation with the instructor. Prerequisites: Zoology I, II, and Botany I, II.

Biol 566-567 Cellular Physiology I and II 4 s.h.

A study of the fundamental activities of plants, animals and micro organisms. The activities considered include the following: nutrition, including in its broadest sense the uptake and preparation of food and oxygen, the release of energy and elimination of waste products; response to the environment; and growth and reproduction.

Biol 568 Demonstrations in Biology 2 s.h.

Classroom and lecture demonstrations will be prepared and evaluated by students and instructors. The use of simple apparatus and easily obtained biological materials will be emphasized.

Chem 546, 547 Biochemistry I, II 4 s.h.

An intensive study of the chemistry, metabolism, and functions of the major constituents of living matter. Three hours per week throughout the year. Prerequisites: Organic Chemistry I and II.

Chem 548, 549 Physical Chemistry I, II 4 s.h.

First Semester: Gases, elementary thermodynamics, solutions. Other topics as time permits.

Second Semester: Electrochemistry, surface chemistry, chemical equilibrium, phase equilibrium, and/or other topics depending upon student interest and available time. Prerequisites: Two years of college chemistry, elementary calculus. Admission to either or both semesters only after conference with the instructor.

Chem 565, 566 Advanced Inorganic Chemistry I, II 4 s.h.

Descriptive chemistry of selected elements and compounds. Interrelationship of atomic structure, chemical properties, and physical properties. Applications to experimental work. Prerequisites: Qualitative and Quantitative Chemistry or Qualitative and Physical Chemistry.

Chem 573, 574 Advanced Organic Chemistry I, II 4 s.h.

A course in theoretical organic chemistry with emphasis on the mechanisms of the major types of organic reactions. Three hours per week throughout the year. Prerequisites: Organic Chemistry I and II.

Phys 567 Analytical Mechanics I 2 s.h.

The topics of this course are kinematics, particle dynamics, gravitation, free and forced harmonic motion. The treatment of these topics involves the use of vector methods and the differential and integral calculus. Prerequisites: General Physics, Mathematics through Differential Equations.

Phys 568 Analytical Mechanics II 2 s.h.

The topics of this course are the dynamics of rigid bodies, wave motion, and statics of particles and rigid bodies.

Phys 569, 570 Electricity and Magnetism I, II 4 s.h.

Topics developed are D.C. and A.C. circuits including properties of circuit elements, electrostatics and magnetic fields, magnetic properties of materials, oscillating circuits and Maxwell's theory of electromagnetic radiation. Some elementary concepts of vector analysis are developed and used where they clarify the treatment. Extra time beyond the one period should be available some weeks for laboratory work and demonstration. Prerequisites: Physics I and II or the equivalent, mathematics through differential and integral calculus.

Phys 571 Advanced Physics Laboratory Practice 2 s.h.

Study of selected topics in physics using advanced laboratory and mathematical techniques.

ELEMENTARY SCIENCE

This program leading to a Master of Education Degree in elementary science is designed to give elementary teachers depth and competency in the content areas of the physical and biological sciences. The sequence of the courses listed below will prepare the student to work as an elementary science resource person within his school or school district.

Chem 580, 581 Chemistry in Elementary Science Education I, II 4 s.h.

Laboratory courses that are designed to aid the elementary teacher in understanding basic chemistry. In addition, the chemistry of common experiences in the elementary school is explored while the manipulation of scientific equipment is given special attention. Each three (3) hours of lecture and/or laboratory.

Sci 583 Physics in Elementary Science Education I 2 s.h.

This laboratory course is designed to strengthen the elementary teacher's background in physics. The metric system, properties of matter, and electricity and magnetism are the areas of concentration. However, particular attention is given to the application of these areas to elementary science. Three (3) hours of lecture and/or laboratory.

Sci 584 Physics in Elementary Science Education II 2 s.h.

A laboratory course that is a follow-up to Physics for the Elementary Teacher I. Work in the areas of light, heat, machines, sound and atomic and nuclear energy will constitute the basis for the course. Once again, particular attention will be provided for the application of these areas to elementary science. Three (3) hours of lecture and/or laboratory.

Sci 586 Botany in Elementary Science Education 2 s.h.

This laboratory course is structured in a manner that the flowering and non-flowering plants will be covered. Special emphasis will be placed upon the taxonomy, morphology and life processes of plants as they are related to work done in the elementary school. Three (3) hours of lecture and/or laboratory.

Sci 587 Zoology in Elementary Science Education 2 s.h.

A laboratory course that provides a study of the vertebrates and invertebrates, their life processes, morphology and taxonomy as it relates to the elementary school. Three (3) hours of lecture and/or laboratory.

Sci 588 Field Biology in Elementary Science Education 2 s.h.

A laboratory course that will acquaint the elementary teacher with the biological environment outside of the classroom and will also provide a number of activities that are applicable to the elementary school. Four (4) hours of laboratory. (Summers only.)

Sci 589 Geology in Elementary Science Education 2 s.h.

A study of rocks and geologic formations as they are related to elementary science. Past history of the earth, as well as present day geologic phenomena are discussed. Field trips and laboratory work are part of the course. Two (2) hours of lecture and/or laboratory.

Sci 590 Meteorology in Elementary Science Education 2 s.h.

The fundamentals of weather and weather instruments are discussed. Familiarization with weather instruments, maps, and records, as well as activities applicable to elementary science are underscored throughout the course. Two (2) hours of lecture and/or laboratory.

Sci 591 Astronomy in Elementary Science Education 2 s.h.

The study of the constellations, members of the solar system, and other heavenly bodies will be part of the area of concentration. However, telescopes and space travel are included as they are related to science in the elementary school. Two (2) hours of lecture and/or laboratory.

Sci 592 Elementary Science Curriculum 2 s.h.

A course designed to come late in the graduate program when the graduate student will have an appreciation for discussions centered around the various approaches to the teaching of science in the elementary school. The study of texts that are being used in the elementary schools as well as the problems of curriculum construction are covered. When possible, demonstration classes will be taught by the instructor and students. Two (2) hours of class.

SOCIAL SCIENCE

The Master of Education Degree with a major in Social Science is designed to give secondary teachers greater depth and competency in the subject matter and research techniques of the social sciences. Preliminary to the selection of a thesis or project topic, the student must have completed Ed 515, Elements of Research, and have programmed a seminar in one social science division. If the student completes his research requirement in a given seminar, he may, with the permission of the department chairman, schedule additional seminars. Elements of Research must be scheduled early in the student's program since this course must precede election of a seminar.

SS 510 New Viewpoints in Social Science Instruction 2 s.h.

Starting with the conclusions developed from recent research in the several social sciences, a study will be made of the curricular and instructional changes which have been proposed to close the gap between what we now know about human behavior and what is generally taught in social science courses.

SS 514 Research Methodologies in the Social Science 2 s.h.

Selection of a research topic, techniques of locating and using source materials, the evaluation of evidence, the organization of the tested data, and the exposition of the tested data according to approved forms. Methodologies of value to students of politics, economics, or sociology will receive attention, in addition to those techniques usually treated in historiography.

SS 521 Contemporary American Issues 2 s.h.

This course will be conducted in seminar fashion, centering its attention on one or two major contemporary American issues. Open only to non-majors in the Social Sciences.

SS 531 Economic and Social History of Pennsylvania 2 s.h.

This course analyzes the economic and social background of Pennsylvania with emphasis on regional development. The interplay of such factors as industrialization and immigration on organizational movements will be studied through the problem approach.

SS 532 U.S.-British Commonwealth Relations 2 s.h.

Emphasis is placed on those aspects of United States and Commonwealth backgrounds and policies that aid mutual understanding and international accord in the modern world.

SS 533 Social and Intellectual History of the United States 2 s.h.

An analysis of the cultural forces which have helped to shape modern America. Ways of living characteristic of certain periods will be studied, together with the more significant social-reform movements and their attendant systems of thought.

SS 541 Modern European Problems 2 s.h.

A course area that considers Europe from the economic, social, political, diplomatic, and cultural points of view. Attention is also given to specific problems and to the role of European powers in world affairs.

SS 542 Contemporary Latin American Problems 2 s.h.

A study of the major cultural, economic, political, and related problems currently confronting the Latin American countries.

SS 543 Modern Asian-African Problems 2 s.h.

To understand better the nature and problems of a large portion of the non-Western world, the emphasis will be placed upon an analysis of contemporary, social, economic, and political developments in selected areas of Asia and Africa.

SS 544 History Seminar 2 s.h.

Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515.

SS 551 International Economics 2 s.h.

The nature of the world economy, international trade, international investment, current international institutions, and the foreign economic policy of the United States. Prerequisite: Principles of Economics.

SS 552 Comparative Economic Systems 2 s.h.

Basic economic issues in capitalism, socialism, communism, and fascism, and their relationships to political and social problems. Prerequisite: Principles of Economics.

SS 553 Contemporary Economic Issues 2 s.h.

Attention will be centered on problem areas of the domestic economy in this course. The primary focus in each semester will be determined by student-instructor interest. Prerequisite: Principles of Economics.

SS 554 Economics Seminar 2 s.h.

Area research in the discipline, considering various facets of a central problem. Prerequisite: ED 515.

SS 561 Social Policy Studies 2 s.h.

Focusing on several key issues on the American social scene, the class will examine the genesis of each problem, the present conflict of values inherent in the problem, the alternative proposals for its solution and the social consequences. Open only to non-majors in the Social Sciences.

SS 562 Deviant Behavior 2 s.h.

Crime as a social product. The social-individual analysis of criminal behavior, its treatment and prevention. Lectures, discussions, papers. Prerequisite: Principles of Sociology.

SS 563 Intergroup Relations 2 s.h.

Intergroup tensions and conflicts will be the subject of study with the major emphasis upon techniques of social action designed to reduce conflict. Prerequisite: Principles of Sociology.

SS 564 Sociology Seminar 2 s.h.

Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515.

SS 571 Foreign Policy Studies 2 s.h.

This course considers selected problems in international affairs. Emphasis is placed on those problems and conflicts which have evolved in the post-war era, particularly as they relate to the position of the United States in World affairs. Specific problems are approached both in terms of the countries involved and in terms of the existing balance in the world economic, ideological, and power structure.

SS 572 Comparative Political Studies 2 s.h.

A course that considers the theory, structure, policies, and problems of selected foreign governments. Specific political ideas and governmental institutions are also analyzed from the comparative point of view. Special emphasis is placed on comparing and contrasting ideas and institutions with those of the United States.

SS 573 Regional Political Studies 2 s.h.

Examines the structure and function of state, county, and municipal governments. It emphasizes the problems faced by government at these levels and seeks solutions to these problems. Pennsylvania governmental forms are stressed but are contrasted with those of other states.

SS 574 Political Science Seminar 2 s.h.

Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515.

SS 581 Problems in Logic 2 s.h.

A study of problems related to the methods of formal logic. Modern techniques of deduction with application to philosophy and the exact sciences.

SS 582 Problems of Ethics 2 s.h.

A study of conflicting philosophies of life and ethical theories. Prerequisite: Introduction to Philosophy.

SS 583 American Philosophical Thought 2 s.h.

A study of the more original and influential philosophies developed in America from the colonial period to the present. Prerequisite: Introduction to Philosophy.

SS 584 Philosophy Seminar 2 s.h.

Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515.

SS 591 Studies in Anthropology 2 s.h.

A survey for graduate students of the evolution of man and culture, presenting the principal findings of physical and cultural anthropology.

SS 592 Comparative Cultures 2 s.h.

A comparative study of selected examples of the world's cultures, from primitive hunters to modern industrial systems, as adaptations to their geographical and social habitats.

SS 593 The Science of Culture 2 s.h.

An introduction to the major theories of cultural anthropology which are employed to account for the variety and structures of man's cultures.

SS 594 Anthropology Seminar 2 s.h.

Area research in the discipline, considering various facets of a central problem. Prerequisite: Ed 515.

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